



# AMATEUR

# RADIO

FEBRUARY 1991

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THE WIA RADIO AMATEUR'S JOURNAL

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### EXECUTIVE EDITOR

Bill Rice VK3ABP

### MANAGING EDITOR

Graham Thornton VK3IY

### NEWS EDITOR

Jim Linton VK3PC

### SENIOR TECHNICAL EDITOR

Peter Gibson VK3AZL

### TECHNICAL EDITORS

David Brownsey VK4AFA  
Don Graham VK6HK  
Evan Jarman VK3ANI  
Peter O'Connor VK4KIP  
Gil Sones VK3AUI  
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Roy Watkins VK6XV

### DRAFTING

Vicki Griffin VK3BNK

### MARKETING

Bruce Kendall VK3WL  
Norm Eyres VK3ZEP

### ADVERTISING

Brenda Edmonds VK3KT  
June Fox

### BUSINESS MANAGER

Bill Roper VK3ARZ

All contributions and correspondence concerning the content of Amateur Radio should be forwarded to: -

The Editor  
Amateur Radio  
PO Box 300  
Caulfield South  
VIC 3162

### Registered Office

3/105 Hawthorn Road  
Caulfield North VIC 3161

Telephone: (03) 528 5962

(03) 523 8191

Fax: (03) 523 8191  
(Non dedicated line)

Business hours: 9.30am to 3pm  
weekdays

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We apologise to our readers for the non-appearance of 'VHF/UHF and Expanding World'. Eric VK5LP, although recovering, is still not well enough to contribute his popular column.



### Cover

The TH6 of Heather VK2HD at dusk when she suffers not so much from birdies but a strange loading effect which alters the resonant frequency of her antenna. Heather gives in to the inevitable, and waits until they leave from their daily visit to her lovely shiny tree! Contributed by John Saunders VK2DEJ.

## EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

### Home-Brew Yet Again?

For a number of hours right up until now I have been involved in an interesting, if masochistic activity. I have been looking at all my past editorials, right back to the first in July 1984!

There was a reason for this strange behaviour. This month I felt impelled to write about a rather topical angle on home-brewing one's amateur equipment. I seemed to remember writing something about home-brew before and, of course, I didn't want to say the same old stuff all over again. Surprise! I had tackled the subject, not once, but twice, in November 1986 and October 1987. Both times I had

emphasised the fact that the amateur service is unique in being permitted to build our own equipment. Sadly, this privilege has now been partially withdrawn in Canada, from all except those with the highest grade of licence. Do we want that to happen here too?

The more topical angle is in regard to cost of home-brew, particularly for the beginner. New or second-hand, an SSB transceiver costs plenty; if the potential buyer is a student, or unemployed, or mortgaged to the hilt, that sort of money may be impossible. But, as Drew Diamond and others have shown, it is possible to build fine equipment relatively cheaply. If you lean

towards CW, it's even easier — the simplest modulation is on/off keying! Components need not cost much. Amateur ingenuity is all about using cheap, readily available parts in ways never intended by their designers!

Many other items need cost little or nothing, except the time to make use of them. I have just wound a transformer for a 13.5-volt power supply (20 amps peak load). The core came from a burnt-out unit acquired many years ago for future salvage. The primary wire was stripped from a refrigerator motor main winding on which the start winding was burnt-out but main okay. The secondary was four layers in parallel from the "scrag end of the junkbox". Wire from fully burnt-out motors and transformers can be twisted-up and used for aerial (antenna) construction.

Have I given you some

ideas? One of my friends of long-standing calls me a cheapskate! I wonder why I never seem to have any spare time! But, moneywise, there's still a bit left over!

One other item of interest emerged from my masochistic search. This is my editorial Number 73 since taking the chair. A very significant number in amateur radio. May it mean best wishes for a long time yet. Graham and I would be happier if we had a few more technical articles coming in, and there's a letter in Over to You just crying out for a "Learn Amateur Radio Novice Course". Ron Cook's "Novice Notes" were good, some years ago, but we need someone now to do an updated series right from the basics. Perhaps someone who has just made it to novice themselves, and better understands the problems people have. One of you out there can do it! Please?

ar

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society - Founded 1910

Representing Australian Radio Amateurs - Member of the International Amateur Radio Union

Registered Executive Office of the WIA: 3/105 Hawthorn Road, Caulfield North, Vic, 3161

All mail to: PO Box 300, Caulfield South, Vic, 3162 Telephone: (03) 528 5962 (03) 523 8191

Fax: (03) 523 8191 (Non-dedicated line)

Business Hours: 9.30 am to 3.00 pm on Weekdays

**General Manager and Secretary: Bill Roper VK3ARZ**

### EXECUTIVE

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# WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

## Vale Ann McCurdy



Ann McCurdy  
Federal Office

It is with deep regret and sadness I notify members that a valued member of the WIA Executive Office staff, Ann McCurdy, passed away on December 21st 1990 after a long

and courageous battle against cancer.

Ann gave ten years of efficient, dedicated and selfless work to the WIA, during which time she served in every position in the office. Ann continued working in the Executive Office, between bouts of treatment, until only a few short weeks before her untimely death.

Although not a radio amateur, Ann knew more about the administration and organisation of amateur radio and the WIA than most others. No task was too difficult for her to handle, ranging from the day to day matters like

dealing with members' telephone queries and advertising for Amateur Radio magazine, to organising the Annual Federal Conventions.

Not only was Ann a competent and loyal worker for the WIA, she was also a delightful and charming person to know and work with.

Ann is greatly missed in the Executive Office and in WIA circles. The sincere sympathy of all in the WIA who knew Ann is extended to her husband Don and sons Andrew and Simon.

## May Special Issue

There is still time for you to submit an article for the May issue of Amateur Radio magazine which will be another "special" issue, this time concentrating on the Advanced

Modes.

Packet, satellite, ATV, slow scan TV, AMTOR - where are all those amateurs who are at the "leading edge" of these rapidly advancing fields? Your article does not have to be technical to the point of blinding the readers with complexity. Many members who have not attempted any of these modes are keen to see simple explanations and instructions.

The Editors cannot print articles they do not have. It's your magazine. Will you help?

## Africa Telecom 90

A recent ITU press release describes the highly successful regional telecommunications exhibition and conference staged by the ITU and held in Zimbabwe early in December.

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1991 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Ted Pearce Secretary Jan Burrell Treasurer Ken Ray	VK1AOP 3.570 MHz VK1BR 2m ch 6950 VK1KEN 70cm ch 8525 2000 hrs Sun	(F) \$67.50 (G) (\$1) \$54.00 (X) \$40.50
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta) 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Roger Henley Secretary Tim Mills Treasurer David Horstall (Office hours Mon-Fri 1100 - 1400 Wed 1900 - 2100)	(R Denotes repeater) Times 1045 and 1915 on Sunday 1.845 MHz AM, 3.595 AM(1045) SSB (1915 only), 7.146 AM (1045 only) 10.125 SSB (1045 only), 28.320 SSB, 52.120 SSB 52.525 FM 144.12 (SSB), 147.00 FM(R) 438.525 FM(R) 584.750 (ATV Sound) 1281.75FM (R) Relays also conducted via many repeaters throughout NSW.	(F) \$65.00 (G) (\$1) \$52.00 (X) \$38.00
VK3	Victorian Division 38 Taylor St Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey Office hours 0900-1600 Tue & Thur	VK3PC 1.840 MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$69.00 (G) (\$1) \$55.00 (X) \$42.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President Murray Kelly Secretary Eddie Fisher Treasurer Eric Fittock	VK4AOK 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, MHz VK4NEF 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$67.50 (G) (\$1) \$54.00 (X) \$40.50
VK5	South Australian Division 34 West Thabbarton Rd Thabbarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Rowland Bruce Secretary John McKellar Treasurer Bill Wardrop	VK5OU 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000, MHz VK5BJM 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.00 Adelaide, ATV 444.250 Mid North (NT)3.555, 146.500, 0900 hrs Sunday	(F) \$67.50 (G) (\$1) \$54.00 (X) \$40.50
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Alyn Maschette Secretary John Farnan Treasurer Bruce Hedland - Thomas	VK6KWN 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250 (R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 3.560 at 1930 hrs.	(F) \$59.00 (G) (\$1) \$47.50 (X) \$32.00
VK7	Tasmanian Division 148 Denwent Ave Lindisfarne TAS 7015	President Tom Allen Secretary Ted Beard Treasurer Peter King	VK7AL 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RWH), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$65.00 (G) (\$1) \$52.00 (X) \$38.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

The theme chosen was "Mobilising resources for development", highlighting the telecommunication needs of developing countries.

The exhibition in which 124 organisations from 22 countries participated covered a very wide range of products and services. The 550 participants at the accompanying Forum were drawn from the private sector world-wide as well as virtually all administrations of the African continent.

## No-Code USA Amateur Licence

The ARRL Letter of December 14, 1990 announces that the FCC (the USA equivalent of DoTC) will shortly drop the Morse code requirement for the Technician class licence, resulting in the first code-free class of licence in the USA. The implementation date may be as early as February 1991.

Holders of the code-free licence will pass the same theory exam as previously, but will be permitted to operate only above 30 MHz. No special call sign designator is intended. In order to gain HF privileges, a pass in Morse code at 5 wpm can be added. No changes are planned at this time to the USA Novice licence.

It only took the USA 36 years to catch up with the Australian no-code licence, the Amateur Operators Limited Certificate of Proficiency!

## JOTA

The report on the 33rd Jamboree On The Air, held on 20 - 21st October 1990, was received recently from the National Coordinator, Peter Hughes, VK6HU.

Peter notes a "Total People Involvement" of 38,500, a 14 % increase from last year, with a total number of contacts of 10,000. Even so, only 34 % of Groups nationally participated in JOTA.

The 1990 JOTA saw the first satellite link via AUSSAT into

all capital cities and New Zealand. Another first was the transmission of the Opening Broadcast across one Scout Hall on a light beam with a frequency of 454,545 GHz.

In his report Peter stresses the mutual benefits between Scouting/Guiding and amateur radio, and the need for the Scout populations to back the WIA in presenting its case at the forthcoming WARC 92.

## Cosmonaut On Air Again

The ARRL Letter of 14th December also noted that the Soviet astronaut, Musa Manarov, U2MIR, is again on the Soviet permanent space station MIR and has resumed operations on 144.55 MHz FM. He hopes to begin packet activity sometime after January 15th 1991.

## Reference Issue

In recent years, WIA editorial policy has established that each February issue of Amateur Radio magazine is a special data reference issue.

A quick look at the index of this February 1991 issue of Amateur Radio magazine will show just how much of this reference type of material has been crammed in. Most of this material has been checked and updated by volunteer labour to take account of changes that have occurred since the publication of the 1991 Call Book.

Members are invited to comment on reference material which should be included or perhaps deleted. Obviously, for this special-reference issue, much of the normal editorial content has had to be reduced to keep the magazine within the size restrictions.

## JA Amateurs in Antarctic

On 14th November 1990 a Japanese Antarctic Research Expedition left for a two year tour of duty in the polar regions. The party includes 11 members who hold amateur licences and who expect to

operate from 8J1RL Showa Base and 8J1RM Asuka Observation Base, probably from 09.30 to 10.30 UTC daily on 7, 14 and 21 MHz.

## WIA Membership Renewals

Although the WIA has had cyclical monthly billing for membership dues for several years now, the majority of membership dues still fall due on 1st January each year. In the first week of December over 4600 membership renewal notices were prepared and sent out to members. Office staff have spent the days over Christmas and the New Year processing the 3000 plus subscriptions so far received as at the first week in January.

Those who forgot to renew their membership before 31st January will not receive the February 1991 issue of Amateur Radio magazine. Those members whose subscriptions fall due at later dates should note that only one magazine is sent after their renewal falls due, but remains unpaid. If your renewal is late back copies of Amateur Radio magazine will cost you \$4.00 (including postage).

## Three Year Members

Whoops!! Last month's WIA NEWS item "Membership Renewals" about reading the address label confused a few members who have paid three year subscriptions.

The first paragraph of the news item should, of course, have concluded "unless you have paid a three-year membership one or two years ago." The 01 on the label indicates that your membership cycle begins on the first of January. Naturally, if an extended membership has been paid, the appropriate January is further off. Unfortunately, the computer print-out does not include the year of renewal (not enough space on the line to fit it in) and most members renew annually.

As membership renewal notices are sent only when the subscriptions fall due, three year members will not receive a notice until their three year renewal is due. If you are one of the steadily increasing number of three year payees, and you are uncertain from your records when your renewal is due, simply contact the Executive Office and the staff will check your records for you.

## 1991 Federal Convention

Planning has already begun for the 1991 WIA Annual Convention to be held on the weekend of 20th - 21st April.

After investigating the costs and benefits of a number of different possible venues, it has been decided to return to the Brighton-Savoy Motel which has been used in previous years. As much of the routine business which used to be handled at the Annual Convention is now dealt with at the quarterly meetings, the length of the annual convention has been able to be reduced to two days.

Items on the agenda will still include Annual Reports and election of office-bearers. Now is the time for members to be contacting their Divisions, and for Divisions to be discussing and submitting motions for the agenda as these need to be received in the Executive Office no later than 12th March 1991.

## February Quarterly Meeting

The first full meeting of the WIA Federal Executive and Federal Council for 1991 will be held on the weekend of 9th and 10th February, at the Executive Office in Melbourne. Representatives from all seven Divisions of the WIA will travel to Melbourne for this meeting to discuss many matters of vital importance to the future of the WIA and amateur radio in Australia.

A report on the proceedings

of this meeting will be presented to WIA members at the earliest opportunity.

## Federal Broadcast Tapes

In response to numerous requests the production of Federal News Tapes from the Executive office has been resumed. These tapes are recorded in the Executive office and distributed to Divisional Broadcast Officers for inclusion in the weekly Divisional broadcasts.

Under normal circumstances, two Federal News segments are recorded at a time, with a limit of four per month, so that in a month with five Divisional news broadcasts, there will be one without a Federal News Tape.

If, for whatever reason, your local Divisional broadcast does not include the complete Federal News Tape, you can always catch up on Federal WIA news by listening to the news broadcast from another Division. Full details of Divisional news broadcasts are included in the WIA Directory on page three of each issue of Amateur Radio magazine.

## WARC 92

Many members have taken the opportunity, when renewing their membership, of sending "a bit extra" to go towards the costs of WIA preparation for, and representation at, WARC 92. These and other donations received for International Representation now stand at \$937.50.

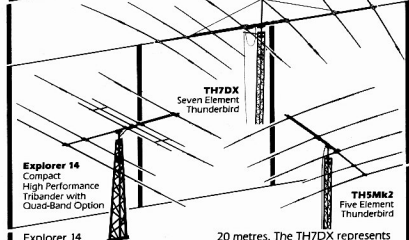
It is with pleasure and appreciation that we acknowledge the following donations over the last few months.

J. Baldock	VK7JF
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E. Buck	VK3ADD
S. Clamp (2)	VK5ASC
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## So You Have a Complaint

From time to time, some members become unhappy about some aspect of the WIA or amateur radio in general. Meetings and on-air ragchews often develop into gripe sessions of "Why don't they \_\_\_" or "They orta \_\_\_".

Like all organisations, there is a right way to approach the WIA for you to receive the maximum attention to your concern. In many ways the structure of the WIA could be said to be unnecessarily cumbersome (it was originally modelled closely on the Australian system of Federation-enough said!).

For your representative body to take note of your needs, complaints or suggestions, you must, in the first instance, direct them to your local Division. If it is a local matter, your concerns will be handled by your Divisional Council.

However, if it is a matter for the Federal Body, your Divisional Council will pass the matter to the Federal Executive through the Divisional representative member of Executive and, if necessary, to the Federal Council through the Divisional Federal Councilor.

Please note that the Federal Body of the WIA must be approached through your local Division.

Also, please find out first if you really do have a complaint. Many of the whinges that reach this office are based on rumour, misheard statements, or misinterpreted data, and can often be satisfied by simple explanation or information.

## Over to You Letters

Some months ago it was decided, because of space restrictions in Amateur Radio magazine, to limit the size of all "Letters to the Editor" published in the magazine to a length of 200 words.

Members will be pleased to learn that the restriction on size of "Over to You" letters has now been modified to allow up to 300 words.

This segment of your magazine is provided to enable you to express your viewpoint. Why not use it?

## Amateur Radio Content

In the November 1990 issue of Amateur Radio I asked for comment about the future content of the magazine. A number of responses have been received and, as was to be expected, a wide range of views has been presented. It is probably not going to be

possible to please everyone completely, but either of two main themes were present in each response. Keep the emphasis in Amateur Radio magazine on technical articles, and provide more articles for beginners.

Great! That is exactly what the Publications Committee had decided. But where are these articles going to come from?

Amateur Radio magazine is a membership journal, produced mainly by volunteers, and dependent entirely on the submission of articles for publication by WIA members. Yes, that means you!

When was the last time you submitted an article for publication in your journal?

Despite the commercialisation of our hobby, the future of amateur radio is still dependent upon experimentation. Experimentation with electronics and with methods of communication; and the sharing of that experimentation with other like-minded enthusiasts.

If the hobby of amateur radio is to survive in Australia, the radio amateurs of Australia must experiment and must publish their results. The obvious place to publish is your own journal, Amateur Radio.

Can the Editors look forward to receiving your articles soon?

## Technical Extracts

Amateur Radio magazine

policy has always been to not republish articles from overseas publications. And there have only been rare, if justifiable, exceptions to that rule.

Several overseas amateur magazines publish short extracts from interesting technical articles published elsewhere. Probably the most famous of these technical digests is "Technical Topics" by Pat Hawker G3VA which appears monthly in the RSGB publication "Radio Communications".

Incidentally, it is interesting to note the frequency with which these overseas magazine columns refer to articles published in our own Amateur Radio magazine.

Well, the time has come for Amateur Radio magazine to commence its own regular "Technical Extracts" column, bringing to WIA members brief details of interesting overseas experimentation and articles.

The only problem is, who will write the column?

Basically we need someone who is technically knowledgeable and able to competently precis articles. If you are able to assist, please contact the Executive Office as soon as practicable. Do not worry if you do not normally have access to overseas publications. We will ensure that you receive copies of all the major English language overseas amateur radio publications. **ar**

# WANTED

Front cover photographs for Amateur Radio.

**REWARD** (if published)

Photo with minimum 1000 word article **\$50.00**

Photo with caption **\$25.00**

Apply to Editor of Amateur Radio

# Callsign Suffixes

Amateur station callsigns normally commence with the letters "VK" followed by a numerical State identifier (ie: 1/2/3/4/5/6/7/8/9/OR0). HOWEVER, TO COMMEMORATE SPECIAL EVENTS, THE USE OF "VI" OR "AX" may be authorised on a temporary basis.

The alphanumeric series outlined is suffixed with up to three letters which indicate the class of amateur licence held and the individual identity of the station. Callsign suffixes are allocated according to the following table:

## Two-Letter Suffixes:

All two-letter suffixes except "AA" and "WI" indicate a full call licensee.

AA = Official DOTC callsign

WI = Allocated to the Wireless Institute

of Australia.

## Three-Letter Suffixes:

AAA-AZZ = Full call licensees  
BAA-BZZ = Full call licensees  
CAA-CZZ = Full call licensees  
DAA-DZZ = Full call licensees  
EAA-EZZ = Full call licensees  
FAA-FZZ = Full call licensees  
GAA-GZZ = Full call licensees  
(Note: GGA-GGZ — allocated to the Girl Guides Association)  
AA-HZZ = Not allocated  
IAA-IZZ = Not allocated  
JAA-JZZ = Combined licensees  
KAA-KZZ = Combined licensees  
LAA-LZZ = Novice licensees  
MAA-MZZ = Novice licensees  
NAA-NZZ = Novice licensees

OAA-OZZ = Not allocated  
PAA-PZZ = Novice licensees  
QAA-QZZ = Not allocated; can be confused with Q codes  
RAA-RZZ = Beacons and repeaters  
SAA-SZZ = Full call licensees  
(Note: SAA-SDZ — allocated to the Scout Association)  
TAA-TZZ = Limited licensees  
UAA-UZZ = Limited licensees  
VAA-VZZ = Novice licensees  
WAA-WZZ = Full call licensees  
(Note: WIA-WIZ allocated to the WIA)  
XAA-XZZ = Limited licensees  
YAA-YZZ = Limited licensees  
ZAA-ZZZ = Limited licensees  
Note: Certain "non-standard" suffixes are allocated, including: RAN, GGx, TTx, ITU, BSx, Sx, etc.

# Stolen Equipment Register

The Stolen Equipment Register is one of many services offered to members by the Wireless Institute of Australia. It has now been in operation since 1980, and is maintained on a computer database in the Executive Office. At regular intervals, updates of the complete list, sorted into categories of: Equipment Manufacturer/Model, Owner, Date Stolen are distributed to each Division. Members wanting to take advantage of their regis-

ter, either to publicise the theft of their equipment, or to check equipment they are about to purchase, may contact their Division, or write or telephone the Executive Office.

Any telephone reports of stolen equipment must be followed immediately with written confirmation of the details. For maximum efficiency, these details should include: Manufacturer's name, Model, Type of equipment, Serial number, Date

stolen, Owner's name, address and call sign, any distinguishing features or modifications, Police contact (if any). When equipment is recovered, it is important that you advise the Executive Office as soon as practicable. This list is the most up-to-date information we have at the time of going to press, but is based entirely on information received from you, the member. Would all readers please check this list and immediately advise if there are any amendments.

## WIA Database List of Unrecovered Stolen Equipment as at 8 January 1991

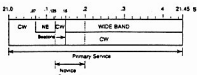
MANUFACTURER	MODEL	DESCRIPTION	SERIAL NUMBER	OWNER	DATE STOLEN	COMMENT
AZDEN	PCS-3000	2M FM MOBILE	36738	VK2KCV	01/06/87	NO MICROPHONE - NO BRACKET
BELCON	LS-202E	2M MIMODE HIHLED	401992	VK3YYD	07/11/90	
BWO	804	DC-10MHz SCOPPE	51767	VK2ZQW	11/01/90	
DICK SMITH	EXPLORER	AUDIO GENERATOR		VK2JUC	15/05/85	
DRAKE	TR-7	70CM FM TRANSCEIVER		VK2KUR	24/09/84	EXTENSIVE MODIFICATIONS
DRESSLER	EVV2000	HF TRANSCEIVER	2333	VK2AML	16/05/90	OWNERS NAMES ENGRAVED
ELECTROPHONE	TX4707	2M PRE-AMP	1027	VK2XJC	15/05/85	
EMTRONICS	NOISE BRIDGE	UHF TRANSCEIVER	50600672	VK6ZPL	11/04/87	
GALAXY	S	EM342		VK4AAE	27/10/89	
GCOL	GV-16	HF TRANSCEIVER	5672V2118	VK3UB	06/06/87	REMOTE VFO
GME	TX472S	HF TRANSCEIVER	5503V1309	VK3UB	06/06/87	REMOTE VFO
ICOM	TX830	2 M FM HANDHELD		VK3JDO	17/11/89	WITH ANTENNA
	HM4G	40 CH UHF T/CIVER	912 48058	VK3JLF	14/06/90	
	IC02A	40 CH AM CB	8770556	VK4IS	15/08/90	
	IC02A	SPEAKER MIC		VK5ZGB	16/12/89	
	IC02A	2M FM HANDHELD	23186	VK2FZH	09/06/89	WITH BP3 AND BC25E
	IC02A	2 M FM HANDHELD	29906249	VK5ZGB	18/12/89	
	IC044	70 CM FM HANDHELD		VK5ZGB	16/12/89	
	IC202	2M SSB TRANSCEIVER	5144	VK4ZSH	03/09/85	
	IC202	2M SSB TRANSCEIVER	03482	VK3ZJY	11/08/87	
	IC202	2M SSB TRANSCEIVER	41013616	VK3ZBI	01/10/85	
	IC211	2M MIMODE T/CIVER	6804309	VK3BRV	17/10/84	
	IC215	2M FM PORT T/CIVER	05156	VK2AMX	20/11/84	
	IC22	2M FM TRANSCEIVER	12266	VK3BLC	29/04/85	
	IC22	2M FM TRANSCEIVER	12467	VK1TR	06/02/90	NO POWER PLUG/DIAL LAMP UNUSUAL
	IC22	2M FM TRANSCEIVER	10918	VK3KD	08/02/90	

MANUFACTURER	MODEL	DESCRIPTION	SERIAL NUMBER	OWNER	DATE STOLEN	COMMENT
	IC22A	2M FM TRANSCEIVER	FALLEN OFF	VK3YV	21/08/87	EARLY MODEL - 22 CHANNELS
	IC22A	2M FM TRANSCEIVER	8653	VK3ZU	03/05/84	-
	IC22A	2M FM TRANSCEIVER	3402112	VK2ZG	01/07/87	-
	IC22A	2M FM TRANSCEIVER	1914	VK4ZSH	03/09/85	-
	IC22S	2M FM TRANSCEIVER	11912	VK2ETJ	06/03/88	PRE-AMP, SOCKET
	IC22S	2M FM TRANSCEIVER	14951	VK3DYZ	11/09/84	-
	IC22S	2M FM TRANSCEIVER	62014533	VK3KAW	23/12/85	-
	IC22S	2M FM TRANSCEIVER	07570	VK3KJA	14/12/87	DIGITAL READOUT
	IC22S	2M FM TRANSCEIVER	15674	VK2CIB	11/02/89	-
	IC22S	2M FM TRANSCEIVER	14 277	VK3ME	14/08/85	-
	IC25SA	VHF TRANSCEIVER	10308425	VK3KLF	14/06/90	-
	IC25A	2M FM TRANSCEIVER	03831	VK2DPM	04/11/84	VFO MODIFIED
	IC280	TRANSCEIVER	02592	VK2BVM	30/03/88	-
	IC290A	ALL MODE TRANSCEIVER	001538	VK3YFA	01/11/90	-
	IC290H	ALL MODE TRANSCEIVER	17701965	VK3ZBI	01/10/85	-
	IC290H	ALL MODE TRANSCEIVER	17703342	EMTRONICS	17/02/86	-
	IC2A	2M FM HANDHELD	04484	VK1MX	21/01/85	VINYL CASE
	IC2A	2M FM HANDHELD	12213837	VK5ABY	22/12/88	-
	IC2A	2M FM HANDHELD	12208700	VK2AHF	08/09/87	-
	IC2A	2M FM HANDHELD	12213830	VK3YOD	02/12/83	SPARE BATTERY PACK
	IC2A	2M FM HANDHELD	29901052	VK2CKD	05/02/86	-
	IC2GAT	2M FM HANDHELD	08616	VK3JDO	17/11/89	WITH BP70, BC36, BPSA X 2
	IC2G0	24070CM TRANSCEIVER	01045	VK2CM	02/08/87	-
	IC45A	70CM FM TRANSCEIVER	18351005	VK3KJC	22/02/84	MEMORY BACKUP UNIT
	IC45A	70CM FM TRANSCEIVER	01878	VK2DPM	04/11/84	-
	IC490A	70CM TRANSCEIVER	16101192	VK3BVO	01/03/83	-
	IC4E	70CM HH TRANSCEIVER	18103021	VK3YOD	02/12/83	SPARE BATTERY PACK
	IC4E	70CM HH TRANSCEIVER	18103021	VK2KZZ	18/08/87	CALLSIGN ENGRAVED
	IC502	6M SSB TRANSCEIVER	00618	VK3ZJY	11/08/87	-
	IC551	6M ALL MODE T/CEIVER	01273	VK4ZSH	03/09/85	INCLUDING FM, VOX
	IC551D	6M ALL MODE T/CEIVER	9401253	VK3ZBI	01/10/85	-
	IC551D	6M TRANSCEIVER	99009878	VK3YSG	01/01/84	-
	IC560	6M TRANSCEIVER	01153	VK3MT	01/02/90	ENGRAVED SECURITY NO. T-00510
	IC701	HF TRANSCEIVER	8001039	VK2777	15/02/88	-
	IC701PS	POWER SUPPLY	7800978	VK2777	15/02/88	-
	IC720A	HF TRANSCEIVER	06243	VK4ZSH	03/09/85	-
	IC721	HF TRANSCEIVER	003663	A. WOJNAR	02/07/90	TRANSCEIVES ALL RFDS FREQUENCIES
	IC730	HF TRANSCEIVER	13806798	MELB UNIV	18/09/85	HOME BREW POWER SUPPLY
	IC735	HF TRANSCEIVER	36304455	EMTRONICS	17/02/86	-
	ICP520	POWER SUPPLY	10101966	VK3YSG	01/01/84	-
KDK	2025 MK II	2M TRANSCEIVER		VK2ETJ	06/03/88	DEFUNCT FINAL
	FMA225 MK 2	2M FM TRANSCEIVER	A5020	VK2AML	03/07/88	SHARPE MICROPHONE
	MULTI 7	2M HANDHELD		VK2TJB	05/02/88	DRIVERS LICENCE NO. ENGRAVED
KENWOOD	AT180	ANTENNA TUNER	0020450	VK2777	11/11/87	-
	AT200	ANTENNA TUNER	82249	VK2DCB	15/08/84	-
	DG5	DIGITAL DISPLAY	730475	VK2DCB	15/08/84	-
	DM81	GRID DIP OSCILLATOR	4020163	VK2KLF	10/08/89	STENCILLED IN 20MM BRIGHT YELLOW
	MC-50	DESK MICROPHONE	N/A	VK5ABY	22/12/88	-
	MS1	MORILE MOUNT		VK5BJA	30/05/89	-
	SP520	SPEAKER		VK2DCB	15/08/84	-
	TM221A	2M FM TRANSCEIVER	8110722	VK2CCD	09/04/88	-
	TM221A	2M FM TRANSCEIVER	8022541	VK3ZJY	11/08/87	-
	TM231A	2M FM TRANSCEIVER	0051018	VK4IS	27/07/90	-
	TM441	400KHZ FM TRANSCEIVER	6010370	VK4IS	01/07/90	-
	TR2400	2M FM HANDHELD	0051950	VK2DPM	28/06/84	-
	TR2400	2M FM HANDHELD	0061926	VK2PJ	20/04/85	CALLSIGN ENGRAVED
	TR2500	2M FM HANDHELD	3040009	VK2ZCC	29/05/85	MICROPHONE AND CHARGER
	TR2500	2M FM HANDHELD	3033045	VK2DYW	02/02/87	-
	TR2600A	2M HANDHELD	7030631	VK5AAR	03/10/86	-
	TR2600A	2M HANDHELD TCVER	5060894	VK2KLF	10/08/89	MISSING HAND STRAP
	TR2600A	2M HANDHELD	5060895	VK5BJA	30/05/89	INCLUDING RUBBER DUCK ANTENNA
	TR751A	2M ALL MODE T/CEIVER	7050512	VK3KMU	29/05/90	GREY MIC - DCL MODEM BOARD
	TR7850	2M FM H/HELD T/CEIVR	202580	VK2CED	06/03/84	"N" CONNECTOR
	TR7850	2M FM H/HELD T/CEIVR M	2020561	VK2ALK	22/10/88	-
	TR7850	2M FM H/HELD T/CEIVR	1111125	VK2COCK	07/02/86	-
	TR7850	2M FM TRANSCEIVER	4010747	VK2VYG	08/08/85	-
	TR8000	2M ALL MODE T/CEIVER	1030627	VK2KHA	04/01/87	ADDITIONAL MEMORY SWITCH
	TR8000	2M ALL MODE T/CEIVER	1050780	VK3YSG	01/01/84	-
	TS120S	HF TRANSCEIVER	950819	VK2777	11/11/87	-
	TS120V	HF TRANSCEIVER	0081224500	VK2VWN	03/05/85	MT35 MICROPHONE
	TS130S	6M SSB TRANSCEIVER	1090168	VK5ABY	22/12/88	-
	TS130S	HF TRANSCEIVER	40401C8	VK2BVM	30/03/88	-
	TS130SE	HF TRANSCEIVER	2060697	VK2KAH	03/01/87	-
	TS430S	HF TRANSCEIVER	4010332	VK2XJC	15/05/85	INCLUDING FM, FILTER
	TS440S	HF TRANSCEIVER	00960078	VK2FTT	01/07/90	-
	TS440S	HF TRANSCEIVER	7090671	VK2FTT	24/10/89	WITH PS50 PSU & MC85 DESK MIC
	TS440S	HF TRANSCEIVER	0101192	VK3NRG	14/10/90	STOLEN FROM VEHICLE IN PERTH
	TS520	HF TRANSCEIVER	010296	VK2ZQW	11/01/90	-
	TS520S	HF TRANSCEIVER	820972	VK2DCB	15/08/84	-
	TS520S	HF TRANSCEIVER	?	VK2ZH	09/06/89	STICKER FROM "TURKEY RADIO"
	TS670	6M & HF TRANSCEIVER	?	VK2XCC	28/06/90	-
	TS700A	2M ALL MODE T/CEIVER 3	50409	VK3ZJY	11/08/87	-
	TS930S	HF TRANSCEIVER	3050176	VK7JG	13/01/83	-
	TV906	6M CONVERTER	720089	VK2ZQW	11/01/90	-
	VFO520	EXTERNAL VFO		VK2DCB	15/08/84	-
	VF144	VHF FM TRANSCEIVER	8296	VK2ZQW	11/01/90	-
KYOKUTO	VF144-10	2M FM TRANSCEIVER	5027	VK2KUR	24/09/84	CALLSIGN ENGRAVED
KYOTO	LSG11	SIGNAL GENERATOR	0041244	VK3KJA	14/12/87	-
LEADER	LSG16	SIGNAL GENERATOR	1081098	VK3YSG	01/01/84	MISC BITS ALSO
MICROWAVE	40W-144 MHZ	2M LINEAR AMPLIFIER		VK2ZQW	11/01/90	-
MIRAGE	B1016	2M 160W PWR AMP	550779	VK3KAW	23/12/85	-
PHILLIPS	828	2M FM TRANSCEIVER	44982	VK4IS	15/08/90	10 CHANNELS - 3 FITTED
REALISTIC	AX190	HF RECEIVER	500111	VK3KJA	14/12/87	-
	SP190	SPEAKER ENCLOSURE	25481	VK3KJA	14/12/87	-
REGENCY	HX2000	HANDHELD		DSE VIC	13/05/85	-
SAIKO	SC7000	SCANNER		VK2XJC	15/05/85	BNC ANTENNA SOCKET
SONO	2001D	COMMUNICATIONS RECVR ?		VK2ZHA	09/06/89	BROKEN ANTENNA
STANDARD	C520	2M & 70 CM HANDHELD	F140829	ANDREWS COMM	18/02/90	STOLEN AT GOSFORD FIELD DAY
TELEQUIP'T	551	OSCILLOSCOPE		VK4AAE	27/10/89	-
TEMPO	1S	2M HANDHELD	012240	VK3JB	06/06/87	-

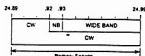




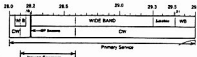
The 15 Metre Band  
21.000 - 21.450 CW  
21.070 - 21.125 Narrow Band Modes  
21.125 - 21.150 CW  
21.125 - 21.200 Novice segment  
21.150 - 21.450 Wide Band Modes  
21.150 +/- 500 Hz IBP Beacon Guard Band  
21.340 +/- 5 MHz SSTV



The 12 Metre Band  
24.890 - 24.990 CW  
24.920 - 24.930 Narrow Band Modes  
24.930 - 24.990 Wide Band Modes



The 10 Metre Band  
28.000 - 29.700 CW  
28.050 - 28.150 Narrow Band Modes  
28.100 - 28.600 Novice segment  
28.150 - 28.190 CW  
28.190 - 28.200 BP Beacon Segment  
28.200 - 28.300 Existing beacons  
28.200 - 29.300 Wide Band Modes  
28.680 +/- 5 kHz SSTV  
29.300 - 29.510 Satellite Downlink  
29.510 - 29.700 Wide Band (FM)  
29.520 - 29.580 Repeater Inputs  
29.600 Simplex  
29.620 - 29.680 Repeater Outputs



# Australian Band Plans:

## The VHF Bands

The VHF Band Plans were revised in October 1990 by the extension of the EME segment on bands above 6 metres, moving the CW calling frequency to .050 on 2 metres and above, and adopting expanded packet radio segments on the 2 metre and 70 cm bands. The 6 metre plan has been revised to allow for 50 MHz beacons in VK5, VK6 and VK8.

On higher bands, a revision has been made to the 23 cm band plan to reinstate a VSB ATV channel at 1285 - 1292 MHz, and this has caused in a slight shift of the Simplex Voice and Digital segments. Proposed new band plans for 2300 MHz and above were published in October 1990 "Amateur Radio" and are reproduced here. These will be presented for adoption in February 1991.

## General

### 1. Narrow Band Segments

On each VHF/UHF band a segment of up to 1 MHz is reserved for narrow band modes and weak signal operation, including segments for CW, EME, DX operation, and beacons. This segment begins at the following frequency on each band:

6 metres: 52 MHz	9 cm: 3456 MHz
2 metres: 144 MHz	6 cm: 5760 MHz
70 cm: 432 MHz	3 cm: 10368 MHz
23 cm: 1296 MHz	1 cm: 24192 MHz
13 cm: 2304 MHz	6 mm: 47088 MHz

### 2. DX Only Segment

On all bands the segment up to .100 is reserved for DX operation only, using narrow band modes (CW, FSK, SSB etc), with bandwidths up to 3 kHz. This segment also contains an exclusive EME sub-band. The space reserved for EME

is as follows:

6 metres: 52.000 - 52.010	23 cm: 1295.900 - 1296.050
2 metres: 144.000 - 144.050	13 cm: 2303.900 - 2304.050
70 cm: 431.950 - 432.050	

For the higher bands, the EME segment is 3456 q 100 kHz, 5760 q 100 kHz etc.

Calling frequencies within the DX Only segment are:

CW: 52.025, 144.050, 432.050, 1296.050, 2304.050
Random M/S: 52.050
RTTY (FSK): 52.075, 144.075, 432.075, 1296.075, 2304.075

### 3. General Phone/CW Segment

Above the DX Only segment on each band is a General Phone/CW segment for all modes up to 6 kHz bandwidth. This includes three calling frequencies: .100 SSB/CW calling frequency (primary) .200 SSB/CW calling frequency (secondary) .300 SSTV calling frequency

On all bands the .100 calling frequency is used as a primary DX frequency, and the .200 frequency is commonly used for aircraft enhancement and other DX operation. On 50 MHz, the international DX calling frequency is 50.110 MHz. Calling frequencies for FM voice, RTTY, SSTV etc are located in the FM Simplex segments of each band.

On the bands above 2.3 GHz, there are only two all-mode calling frequencies:

- .100 Primary / DX/
- .200 Secondary / Local calling frequencies are used to make initial contact, then move to another frequency. Prolonged contacts or test transmissions on calling frequencies are anti-social - others may be waiting to make (or hear) a call.

### 4. Beacon Segments

The primary beacon segment on each band is 400 - 500. On 6 metres only, the

secondary segment is 52.300 - 52.400 MHz. On all other bands, the secondary beacon segment is .500 - .600. Beacons are allocated according to a call area allocation plan, with the 10 kHz digits of the frequency indicating the call area.

The allocation of the primary segment is as follows:

VK0: 400 - 409	VK4: 440 - 449
VK7: 470 - 479	VK1: 410 - 419
VK5: 450 - 459	VK8: 480 - 489
VK2: 420 - 429	VK6: 460 - 469
VK9: 490 - 499	VK3: 430 - 439

The pattern is the same for the secondary segment. The present 5 kHz channeling provides a total of four clear channel beacon frequencies per call area.

On 50 MHz, 50.056 MHz is reserved for time-shared beacons north of the Tropic of Capricorn, and 50.066 MHz south of the Tropic. A segment for continuous duty beacons in VK5, VK6 and VK8 has also been adopted - see the 6 metre band plan for details.

### 5. General Use Segments

On all bands except 6 metres there is a "General Use" segment immediately above the beacon segment. This is used for any purpose, such as local or club nets, experimental work, liaison etc. On some bands this segment may include frequencies reserved for Packet Radio, CW practice beacons and other uses.

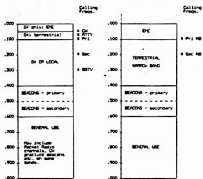
## NARROW-BAND SEGMENTS:

Fig. 1: 2M - 13 CM Bands	
.000 - .100	DX ONLY
.100 - .150	EME
.150 - .400	TERRESTRIAL
.100	Primary (DX) calling freq
.200	Secondary (local) calling freq
.400 - .500	BEACONS - primary
.500 - .600	BEACONS - secondary
.600 - .000	GENERAL USE, NB modes

# WIA Divisional Bookshops

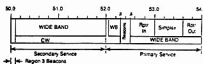
The following items are available from your Division's Bookshop  
(see the WIA Divisions Directory on page 3 for the address of your Division)

	Ref	Price to Members		Ref	Price to Members
<b>ANTENNA BOOKS</b>					
Ant. Compendium Vol 2 Software only	BX293	\$18.00	<b>INTERFERENCE BOOKS</b>		
Antenna Compendium Vol 1 ARRL	BX163	\$19.80			
Antenna Compendium Vol 2 & Software ARRL	BX294	\$32.40	Interference Handbook - Nelson	BX181	\$16.02
Antenna Compendium Vol 2 ARRL	BX292	\$21.60	Radio Frequency Interference - ARRL	BX186	\$8.55
Antenna Handbook - Orr	BX217	\$15.57	<b>MISCELLANEOUS</b>		
Antenna Impedance Matching - ARRL	BX257	\$27.00			
Antenna Note Book W1FB - ARRL	BX179	\$18.00	Amidon Ferrite Complete Data Book	BX44	\$7.65
Antenna Pattern Worksheets Pkt of 10 - ARRL	BX211	\$5.40	Design Notebook W1FR - ARRL	BX357	\$18.00
Antennas 2nd ed John Kraus	BX259	\$93.60	DX Power - KSRSG	BX356	\$18.00
Beam Antenna Handbook - New Ed. 1990 Orr	BX215	\$17.37	Help For New Hams DeMaw - ARRL	BX308	\$18.00
Cubical Quad Antennas - Orr	BX214	\$13.05	Hints and Kinks 12th edition - ARRL	BX330	\$14.40
HF Antennas - Moxon RSGB	BX188	\$27.00	Novice Notes, The Book - ARRL QST	BX298	\$10.80
Novice Antenna Notebook DeMaw - ARRL	BX162	\$14.40	Passport to World Band Radio 1991	BX346	\$30.60
Practical Wire Antennas - RSGB	BX296	\$25.20	QRP Classics - ARRL QST	BX323	\$21.60
Reflections - Software 5 in disk	BX358	\$18.00	QRP Note Book - DeMaw ARRL	BX170	\$10.80
Reflections - Transmission Lines The Book - ARRL	BX348	\$36.00	Radio Astronomy 2nd edition - John D Kraus	BX262	\$71.91
Smith Chart Expanded Scale Pkt of 10	BX903	\$5.94	Short Wave Propagation Handbook	BX268	\$16.65
Smith Charts Stand Scale 1 SET Co-or. PK of 10	BX900	\$5.94	Shortwave Receivers Past and Present	BX253	\$15.84
The Antenna Handbook - ARRL	BX161	\$32.40	Solid State Design - DeMaw ARRL	BX171	\$21.60
The Truth About CB Antennas - Orr	BX219	\$15.57	<b>MORSE CODE</b>		
Transmission Line Transformers - ARRL	BX329	\$36.00			
Vertical Antenna Handbook - Lee	BX284	\$16.65	Advanced Morse Tutor - 3.5 inch Disk	BX328	\$27.00
Vertical Antennas - Orr	BX220	\$14.27	Advanced Morse Tutor - 5.25 inch Disk	BX328	\$27.00
Yagi Antenna Design - ARRL	BX164	\$27.00	Morse Code 2 Tapes Novice Code Course - Gordon West	BX228	\$17.91
<b>ATV BOOKS</b>					
Micro and Television Projects - BATC	BX272	\$9.45	Morse Code 6 Tapes 13-20 WPM Code Course - Gordon West	BX231	\$63.90
The ATV Compendium - BATC	BX270	\$15.75	Morse Code 6 Tapes 5-13 WPM Code Course - Gordon West	BX230	\$63.90
The Best Of CO-TV - BATC	BX273	\$15.75	Morse Code 6 Tapes Novice Code Course - Gordon West	BX229	\$63.90
The Slow Scan Companion - BATC	BX274	\$11.70	Morse Code Tapes Set 1: 5-10 WPM - ARRL	BX331	\$16.65
TV For Amateurs - BATC	BX271	\$8.32	Morse Code Tapes Set 2: 10-15 WPM - ARRL	BX332	\$16.65
<b>CALL BOOKS</b>					
Radio Call Book International 1991	BX339	\$56.25	Morse Code Tapes Set 3: 15-22 WPM - ARRL	BX333	\$16.65
Radio Call Book North America 1991	BX338	\$52.65	Morse Code Tapes Set 4: 13-14 WPM - ARRL	BX334	\$16.65
Radio Call Book Supplements 1991 Due June	BX364	\$15.75	Morse Code The Essential Language - ARRL	BX223	\$9.00
<b>FICTION</b>					
CQ Brings Danger - ARRL	BX206	\$9.45	Morse Tutor 5.25 inch IBM Disk	BX187	\$18.00
CQ Ghost Ship - ARRL	BX204	\$9.45	<b>OPERATING</b>		
Death Valley QTH - ARRL	BX205	\$9.45			
Grand Canyon QSO - ARRL	BX207	\$9.45	Amateur Radio Awards Book - RSGB	BX297	\$27.00
Murder By QRM - ARRL	BX208	\$9.45	DXCC Companion	BX345	\$10.80
SOS At Midnight - ARRL	BX209	\$9.45	Low Band DXing - John Devoldere	BX195	\$18.00
Space Almanac - ARRL	BX299	\$36.00	Maidenhead Locator-Grid Atlas - ARRL	BX197	\$9.00
<b>HANDBOOKS</b>					
1991 ARRL Handbook	BX337	\$47.61	Prefix Map - The World Flat on Heavy Paper	BX335	\$14.40
Electronics Data Book - ARRL	BX201	\$21.60	Prefix Map of North America	BX235	\$7.20
Motorola RF Device Data - 2 Volumes	BX47	\$22.05	Prefix Map of the World	BX234	\$7.20
Operating Manual - ARRL	BX192	\$27.00	Radio Amateurs World Map	BX236	\$7.20
Operating Manual - RSGB	BX359	\$25.20	The Complete DXer - Bob Locher	BX194	\$18.00
Radio Communication Handbook - RSGB	BX266	\$50.40	Transmitter Hunting - TAB	BX222	\$32.31
Radio Data Reference Book - RSGB	BX189	\$32.40	<b>PACKET RADIO BOOKS</b>		
Radio Handbook 23rd edition - Bill Orr	BX224	\$53.91			
Radio Theory For Amateur Operators - Swainston	BX265	\$38.66	AX.25 Link Layer Protocol - ARRL	BX178	\$14.40
<b>HISTORY</b>					
200 Meters and Down 1936 - ARRL	BX198	\$7.20	Computer Networking Con (Packet)	BX167	\$18.00
50 Years of the ARRL	BX196	\$7.20	Computer Networking Con (Packet) No 5 1986 - ARRL	BX168	\$18.00
Big Ear - Autobiography Of John Kraus W8JK	BX363	\$11.25	Computer Networking Con (Packet) No 6 1987 - ARRL	BX184	\$22.50
Golden Classics Of Yesterday - Ingram	MFJ30	\$18.45	Computer Networking Con (Packet) No 7 1988 - ARRL	BX295	\$21.60
Spark to Radio - ARRL 75th Anniversary	BX310	\$36.00	Computer Networking Con (Packet) No 8 1989 - ARRL	BX360	\$21.60
<b>NOTES</b>					
Not all items listed above are available from all Divisions (and none are available from the Executive Office).					
If the item is carried by your Divisional Bookshop, but is not in stock, your order will be taken and filled as soon as practicable.					
All prices are for WIA members only - postage and packing, if applicable, is extra.					
All orders must be accompanied by a remittance.					



## The 6 Metre Band: 50 - 54 MHz

Allocations in this band are as follows:  
50-52 MHz: Broadcasting primary service, Amateur secondary (see Note 1)  
52-54 MHz: Amateur primary service.



50.000 - 52.000	RESTRICTED USE SEGMENT (Note 1)
50.000 - 50.100	CW only
50.100 - 52.000	CW/Phone
50.110	International DX Calling Frequency
50.250 - 50.300	Beacons (VK6/8/9 only - Note 2)
52.000 - 52.500	DX only: EME
52.010 - 52.050	DX only: CW
52.025	CW calling frequency
52.050 - 52.100	DX only: Phone/CW
52.050	DX/MS calling frequency
52.075	RTTY (FSK) calling frequency
52.100 - 52.300	General CW/Phone
52.100	Calling Frequency (primary national)
52.300	Calling Frequency (secondary national)
52.300	Beacons: secondary segment (Note 2)
52.400 - 52.500	Beacons: primary segment (Note 2)
52.500 - 52.600	FM simplex and repeaters
52.525	International FM simplex calling frequency
52.550 - 52.975	Repeater inputs (Note 3)
53.000 - 53.100	Simplex data transmission
53.025	BBS forwarding
53.050	General use
53.075	General use
53.100	General use
53.125 - 53.525	Simplex: voice
53.500	National voice calling frequency
53.550 - 54.000	Repeater outputs (Note 3)

## Note 1: 50 - 52 MHz Operating Conditions

This portion of the band is allocated on a primary basis to the Broadcasting Service and on a secondary basis to the Amateur Service. DoTC permits amateur stations to operate within this band under the following conditions:

- No interference is caused to the reception of Channel 0 transmissions;
- In New South Wales, Victoria, Queensland and Tasmania, operation is restricted to:

- The sub-band 50.05 - 50.20 MHz;
- Locations outside the following minimum radial distances from Television Channel 0 main stations: 120 km Television Channel 0 translator stations:

60 km Television translator stations with Channel 0 inputs: 60 km

(iii) Emission mode 200HA1A with a maximum transmitter power of 100 watts pY;

(iv) Emission mode 4K00J3E with a maximum transmitter power of 100 watts pX.

(c) In the Australian Capital Territory, operation is restricted to:

- The sub-band 50.05 - 50.20 MHz;
- Emission mode 200HA1A with a maximum transmitter power of 100 watts pY;

(iii) Emission mode 4K00J3E with a maximum transmitter power of 100 watts pX.

## Note 2: Beacon Operation

Beacon frequencies on 52 MHz are allocated in accordance with the beacon plan on a state basis, i.e. VK1: 52.410 - 52.419, VK2: 52.420 - 52.429 etc. The current 5 kHz channelling provides four channels per call area.

Beacons within the 50 MHz "DX window" (50.050 - 50.200) are confined to time sharing on 50.056 MHz (north of the Tropic of Capricorn) and 50.066 MHz (south of the Tropic of Capricorn).

Continuous duty beacons in VK5/6/8/9 may operate outside the 50.050 - 50.200 MHz segment. The following plan was adopted for such beacons in October 1990:

VK5:	VK6:	VK7:	VK8:	VK9:
50.250	50.260	50.270	50.280	50.290
50.252	50.262	50.272	50.282	50.292
50.254	50.264	50.274	50.284	50.294
50.256	50.266	50.276	50.286	50.296
50.258	50.268	50.278	50.288	50.298

\* Channels at 4 kHz increments to be allocated first.

# This segment (not of course available in VK7) to be used if needed for beacons in other call areas.

## Note 3: Repeaters

The repeater split is 1 MHz and the channel spacing is 25 kHz. Seven repeater channels are allocated for exclusive use in the following call areas:

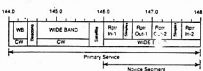
VK1: 52.70 / 53.70	VK5: 52.75 / 53.75
VK2: 52.85 / 53.85	VK6: 52.80 / 53.80
VK3: 52.90 / 53.90	VK7: 52.65 / 53.65
VK4: 52.95 / 53.95	VK8: as for VK5

The remaining channels are available for use in any call area. Repeater channel allocations are co-ordinated nationally to reduce the possibility of interstate sporadic E interference.

## The 2 Metre Band: 144 - 148 MHz

This band is allocated to the Amateur Service on a primary basis, and the Amateur Satellite Service is also allocated 144 - 146 MHz. Novices have the use of 146 - 148 MHz for 16K0F3E (FM) emissions only.

144.000 - 144.600	NARROW BAND MODES
144.000 - 144.050	DX only: EME
144.050 - 144.100	DX only: Terrestrial



144.050	CW calling frequency
144.075	RTTY (FSK) calling frequency
144.100 - 144.400	General CW/Phone
144.100	Calling Frequency: primary national
144.200	Calling Frequency: secondary national
144.300	Beacons: primary segment
144.400 - 144.500	Beacons: secondary segment
144.500 - 145.700	GENERAL USE: all modes
144.700 - 144.925	Packet Radio: 10 channels at 25 KHz spacing
144.950 - 144.975	CW Practice Beacons: 2 channels
145.700 - 146.000	AMATEUR SATELLITES
146.000 - 148.000	FM SIMPLEX AND REPEATERS (Notes 1, 2, 3)
146.025 - 146.400	Repeater inputs - group A
146.425 - 146.600	Simplex (Note 4)
146.625 - 147.000	Repeater outputs - group A
147.025 - 147.375	Repeater outputs - group B
147.400 - 147.600	Simplex (Note 4)
147.625 - 147.975	Repeater inputs - group B

## Note 1: FM Repeaters

Channel spacing is 25 KHz, and repeater offset is 600 KHz. In some areas it may be necessary to reverse repeater inputs and outputs in order to avoid interference from pagers.

## Note 2: Repeater Linking

Regulations require the use of tone access for 2 metre repeaters linked to repeaters in other bands, to prevent the possibility of Novice transmissions being relayed on frequencies they are not entitled to use. The following CTCSS tones have been adopted for repeater access:

123 Hz: For access to linked repeaters where CTCSS tone squelch is fitted as a means of preventing intermodulation interference.

141.3 Hz: For use by full or limited licensees to activate links to other VHF/UHF bands. This tone will also perform the same function as the 123 Hz tone.

## Note 3: Special Purpose Repeater Channels

The following repeater channels are reserved for special uses:	
ATV liaison:	147.300 MHz
RTTY:	147.325 MHz 147.350 MHz

## Note 4: Special Purpose Simplex Channels

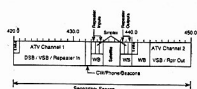
The following simplex channels are reserved for special uses:

146.450	Primary national voice
146.500	National voice calling frequency (primary).
146.550	Primary national voice
146.600	RTTY.
147.400	ATV liaison.
147.425	ATV liaison.
147.450	ATV/SSTV/FAX.
147.475	SSTV/FAX liaison.
147.500	National voice calling frequency (secondary)
147.550	Micro nets.
147.575	Data/packet nets.
147.600	Data/packet nets.

## The 70 cm Band: 420 - 450 MHz

This band is allocated to the following services:

Service	Band	Status
Radio	420 - 450	Primary
Fixed, Mobile	420 - 450	Secondary
Amateur	420 - 450	Secondary Amateur
Satellite	435 - 438	Secondary



420.000 - 421.000	REPEATER LINKS - "A" pairs
421.000 - 431.950	AMATEUR TELEVISION
Channel 1 - VSB/DSB	(simplex or repeater in-put)
426.250	Video carrier
431.750	Audio carrier
431.950 - 432.600	NARROW BAND MODES
431.950 - 432.050	DX only: EME
432.050 - 432.050	DX only: Terrestrial
432.050	CW calling frequency
432.075	RTTY (FSK) calling frequency
432.100 - 432.400	General CW/Phone
432.100	Calling Frequency: primary national
432.200	Calling Frequency: secondary national
432.300	Calling Frequency: SSTV
432.400 - 432.500	Beacons: primary segment
432.500 - 432.600	Beacons: secondary segment
432.600 - 433.000	GENERAL USE, all modes
433.000 - 433.000	FM SIMPLEX AND REPEATERS
	(Notes 1 and 2)
433.025 - 433.725	Repeater inputs
433.750 - 434.250	Simplex (Note 3)
434.275 - 434.975	Repeater inputs
435.000 - 438.000	AMATEUR SATELLITES
438.000 - 443.000	FM SIMPLEX AND REPEATERS
	(Notes 1 and 2)
438.025 - 438.725	Repeater outputs
438.750 - 439.250	Simplex (Note 3)
439.275 - 439.975	Repeater outputs
440.000 - 441.000	REPEATER LINKS - "B" pairs
441.000 - 443.000	WIDE BAND & EXPERIMENTAL
	all modes
443.000 - 450.000	AMATEUR TELEVISION Channel 2 - VSB
	(simplex or repeater output)
444.250	Video carrier
449.750	Audio carrier

#### Note 1: Repeater Operation

Channel spacing is 25 KHz, and repeater offset is 5 MHz. For details of repeater linking tone access, see Note 2 for the 2 metre band.

#### Note 2: Special Purpose Repeater Channels

The following repeater channels are reserved for special uses:

Mobile voice primary: 438.525

Mobile voice secondary:

438.075	438.225
438.375	438.675
438.025	438.175
438.325	438.425
438.475	439.275
439.425	439.475
439.725	439.875
438.275	438.625
438.125	438.725
439.325	439.475
438.575	
SSTV:	439.975

#### Note 3: Special Purpose Simplex Channels

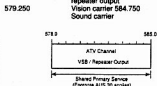
The following simplex channels are reserved for special uses:

National voice call channel:	439.000
Secondary voice channels:	438.625 439.125
WICEN:	438.800
RTTY:	438.775
Data and Packet:	439.050 439.075 439.200 439.225 439.250 439.050 439.075 439.200 439.225 439.250
SSTV:	438.925

**The 50 cm Band: 578 - 585 MHz** Only existing ATV repeaters will be permitted

in this band following its withdrawal from the Amateur Service in 1989.

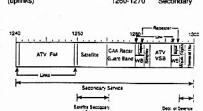
578.000 - 585.000 AMATEUR TELEVISION, VSB repeater output  
Video carrier 584.750  
Sound carrier



### The 23 Cm Band: 1240 - 1300 MHz

This band is allocated to the following services:

Service	Band	Status
Radio	1240-1300	Primary
Radio/navigation - Satellite	1240-1250	Primary
Amateur Satellite	1240-1300	Secondary



1241.000 - 1241.000	REPEATER LINKS
1241.000 - 1259.000	AMATEUR TELEVISION (Note 5)
1259.000 - 1260.000	REPEATER LINKS
1260.000 - 1270.000	AMATEUR SATELLITES (uplinks only)
1270.000 - 1280.000	GENERAL USE (Radar guard band - Note 1)
1280.000 - 1281.975	REPEATER LINKS
1281.000 - 1285.000	FM SIMPLEX AND REPEATERS
1281.000 - 1283.975	Repeater outputs (Note 2)
1283.000 - 1283.975	Simplex - Digital and Packet Radio (Note 4)
1284.000 - 1284.975	Simplex - Voice (Note 3)
1285.000 - 1292.000	AMATEUR TELEVISION - VSB AM (Note 5)
1296.250	Video carrier
1291.750	Audio carrier
1292.000 - 1293.975	REPEATER LINKS
1293.000 - 1294.975	FM REPEATER INPUTS (Note 2)
1295.000 - 1297.000	NARROW BAND MODES (Radar guard band - Note 1)
1295.900 - 1296.050	DX only: EME
1296.050 - 1296.100	DX only: Terrestrial
1296.100	CW calling frequency
1296.100	RTTY (FSK) calling frequency
1296.100 - 1296.400	General Phone/CW
1296.400	Calling frequency: primary national
1296.400	Calling frequency: secondary national
1296.400	Beacons: primary segment
1296.400 - 1296.500	Beacons: secondary segment
1296.500 - 1297.000	General use, all narrow band modes
1297.000 - 1300.000	ALL MODES (Note 1)

#### Note 1: Radar Guard Bands

Some Department of Aviation RADARS are centred on 1275.0 and 1305.0 MHz, while some Department of Defence RADARS are centred on 1300.0 MHz. Accordingly the frequencies 1270 - 1280 MHz and 1295 - 1300 MHz are allocated as guard bands. The Department of Aviation RADARS on 1275 MHz are to be phased out by 1992.

#### Note 2: FM Repeater Operation

Channel spacing is 25 KHz, and re-

peater offset is 12 MHz. Certain channels are reserved for particular uses as follows:

Mobile Voice:	11 multiples of 100 KHz from 1281.100 to 1283.000			
Primary:	1281.500			
Secondary:	1281.400	1281.600		
RTTY:	1281.050	1281.150	1282.150	282.250
Data:	1281.250	1281.350	1282.350	
1282.450				
ATV Liaison:	1281.850	1281.950		

Other channels may be used for any purpose. It is suggested that the channels 1282.500 - 1282.975 and 1293.500 - 1293.975 be reserved for possible use by linear transponders.

#### Note 3: FM Simplex Channels

Channel spacing is 25 KHz. Channel allocation is as follows:

1284.000 - 1284.075	RTTY 4 channels
1284.100 - 1284.175	ATV Liaison/SSTV 4 channels
1284.200 - 1284.775	General voice 24 channels
1284.500	Primary calling frequency
1284.800 - 1284.975	Local, club or special purpose nets
1284.900 - 1284.975	WICEN

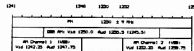
#### Note 4: Digital and Packet Radio

Channel allocations will be finalised after discussion with packet radio groups.

A tentative allocation is:	1283.100 - 1283.500
Speeds over 9600 baud	5 channels at 100 kHz spacing
1283.600 - 1283.975	
Speeds up to 9600 baud	16 channels at 25 kHz spacing

#### Note 5: Recommended ATV Frequencies

The 1241 - 1259 MHz segment can be used for FM ATV (video carrier 1250 MHz) or for AM operation. Suggested uses of this segment are:



The 1285 - 1292 MHz channel is suitable for VSB AM only.

### The 13 Cm Band: 2300 - 2450 MHz

This band is allocated to the following services:

Service	Band	Status
Fixed, Mobile	2300 - 2450	Primary
Radio	2300 - 2450	Primary
Industrial/Scientific/Medical	2400 - 2450	Secondary
Primary Amateur	2400 - 2450	Secondary
Amateur Satellite	2400 - 2450	Secondary
The band also contains MDS television links, with channels at 7 MHz spacing on centre frequencies between 2305.5 MHz to 2396.5 MHz. The first six channels (effectively 2302 - 2344 MHz) are unallocated but are reserved for future use.		
The following band plan is proposed for adoption in February 1991:		
2300.000 - 2303.900	GENERAL USE, all modes	
2303.900 - 2305.000	NARROW BAND MODES	
2305.000 - 2304.050	DX only: EME	
2304.050 - 2304.100	DX only: Terrestrial	

2304.050	CW calling frequency
2304.075	RTTY (FSK) calling frequency
2304.100 - 2306.400	General Phone/CW
2304.100 - 2304.150	Calling frequency: primary national
2304.200	Calling frequency: secondary national
2304.400 - 2304.500	Beacons: primary segment
2304.500 - 2304.550	Beacons: secondary segment
2304.550 - 2305.000	Beacons: narrow band modes
19 2305.000 - 2306.000	FM SIMPLEX - voice
	25 MHz channeling
2306.000 - 2307.000	FM SIMPLEX - digital 25 MHz channeling
2307.000 - 2309.000	FM REPEATER LINK OUTPUTS
	35 MHz offset
	WIDEBAND MODES
2309.000 - 2314.000	Data: duplex - 35 MHz offset
2309.000 - 2314.000	FM ATV Channel 1
2318 +/- 14 MHz	
2322.000 - 2344.000	FM REPEATER LINK INPUTS
	35 MHz offset
	WIDEBAND MODES
2344.000 - 2386.000	Data: duplex - 35 MHz offset
2344.000 - 2386.000	Data: simplex
2358.000 - 2386.000	FM ATV Channel 2 2372 +/- 14 MHz
2386.000 - 2400.000	GENERAL USE, all modes
2392.000 - 2396.000	Beacons: FM simplex
2396.000 - 2400.000	Narrow band modes: segment to be adopted consistent with proposed Region 2 NB seg. ment.
2400.000 - 2450.000	REPEATER SATELLITE (FS) (downlink)

21	3300.00-3400.00	WIDEBAND MODES
3300.000-3330.000		Wideband channel 1 3315 ± 15 MHz
3330.000-3360.000		Wideband channel 2a 3345 ± 15 MHz
3360.000-3400.000		Wideband channel 2b 3375 ± 15 MHz
3390.000-3400.000		FMLINKS - narrowband 70 MHz offset
3400.000-3410.000		AMATEUR SATELLITES (Regions 2 and 3)
3410.000-3440.000		WIDEBAND MODES
3410.000-3420.000		Links 60 MHz offset
3420.000-3450.000		Wideband channel 4a 3435 ± 15 MHz
3450.000-3460.000		Wideband channel 4b 3465 ± 15 MHz
3455.900-3457.100		NARROW BAND MODES
3455.900-3456.000		EME only
3456.100-3456.400		Terrestrial
3456.100		Calling frequency: all mode primary/ DX
3456.200		Calling frequency: all mode secondary/ local
3456.400-3456.500		Beacon: primary segment
3456.500-3456.600		Beacon: secondary segment
3456.600-3457.000		General use, all narrow band modes
3457.000-3460.000		General use, voice
3458.000-3460.000		FM SILEX - digital
3460.000-3470.000		FMLINKS - narrow band 70 MHz offset
3470.000-3600.000		WIDEBAND MODES
3470.000-3480.000		Links 60 MHz offset
3480.000-3510.000		Wideband channel 1b 3495 ± 15 MHz
3510.000-3540.000		Wideband channel 2b 3525 ± 15 MHz
3540.000-3570.000		Wideband channel 3b 3555 ± 15 MHz
3570.000-3600.000		General use, voice

**Note 1:** Possible future NB segment in the 5670 MHz region to conform to Region 1 proposal.

### The 3 cm Band: 10 - 10.5 GHz

This band is allocated to the following

services:

## Service

Radiolocation	10.0 - 10.5 GHz	Primary *
Amateur	10.0 - 10.5 GHz	Secondary
Amateur Satellite	10.45 - 10.5 GHz	Secondary

The following band plan is proposed for adoption in February 1991. It makes provision for a narrow band modes segment, on the pattern of the lower bands, beginning at 10368 MHz, and segments for repeater and data links. There is also a series of channels, each 30 MHz wide, for wideband video, voice or data uses. These channels can be used for simplex operation or paired for duplex operation with IF frequencies at any multiple of 30 MHz up to 150 MHz. An IF in the 144-148 MHz band is also possible using a 150 MHz spaced channel pair. Very wideband band systems ( $\pm 30$  MHz) could operate on 10180, 10270, 10330 or 10420 MHz.

10000.0	-10050.0	ALL MODES
10050.0	-10150.0	WIDEBAND FM
10100.0		Center frequency for wideband beacons
10150.0		WIDEBAND MODES
10150.0	-10210.0	Channel 1a 10165 ± 15 MHz
10180.0	-10210.0	Channel 2a 10195 ± 15 MHz
10210.0	-10250.0	ALL MODES
10225.0	-10230.0	NB1M REPEATER LINK INPUTS
		150 Hz offset
10230.0	-10240.0	WIDEBAND DATA - duplex 150 MHz offset
10240.0	-10360.0	WIDEBAND MODES
10240.0	-10270.0	Channel 3a 10255 ± 15 MHz
10270.0	-10300.0	Channel 4a 10285 ± 15 MHz
10300.0	-10310.0	Channel 1b 10315 ± 15 MHz
10330.0	-10360.0	Channel 2b 10345 ± 15 MHz
10360.0	-10368.0	ALL MODES
10368.0	-10370.0	NARROW BAND MODES
10368.0	± 100 MHz	EM only
10368.1	-10368.4	Terrestrial
10368.1		Call frequency; all mode primary/DF
10368.2		Call frequency; all mode secondary/local
10368.5	± 100 MHz	Beacons
10368.6	-10370.0	General use; all narrow band modes
10370.0	-10372.0	NB1M SIMPLEX - voice
10372.0	-10375.0	NB1M SIMPLEX - digital
10375.0	-10380.0	NB1M REPEATER LINK OUTPUTS
		150 Hz offset
10380.0	-10390.0	WIDEBAND DATA - duplex
		150 MHz offset
10390.0	-10450.0	WIDEBAND MODES
10390.0	-10420.0	Channel 3b 10405 ± 15 MHz
10420.0	-10450.0	Channel 4b 10435 ± 15 MHz
10450.0	-10455.0	AMateur SATELLITE

[illegible][illegible]

## The 9 cm Band: 3300 - 3600 MHz

This band is allocated to the following services:

## Service

Radiolocation	3300 - 3600	Primary
		Amateur
Amateur Satellite (Regions 2 & 3)	3300 - 3600	Secondary
Fixed Satellite (space to earth)	3400 - 3410	Secondary
Fixed	3400 - 3600	Secondary
Mobile	3400 - 3600	Secondary

The scope of amateur activity in this band is limited by the need to avoid interference to other services. A large portion of the band is allotted to wideband "channels," each 30 MHz wide, for FM ATV and other wideband uses. These channels can be paired for duplex operation with IF frequencies at any multiple of 30 MHz up to 180 MHz.

The following band plan is proposed for adoption in February 1991.

3200	WISCONSIN CHANNEL, 1st PS; 3210 ± 15 MHz	3480	WISCONSIN CHANNEL, 1st PS; 3480 ± 15 MHz
3230	WISCONSIN CHANNEL, 2nd PS; 3245 ± 15 MHz	3510	WISCONSIN CHANNEL, 2nd PS; 3510 ± 15 MHz
3260	WISCONSIN CHANNEL, 3rd PS; 3275 ± 15 MHz	3540	WISCONSIN CHANNEL, 3rd PS; 3540 ± 15 MHz
3290	Northern, Basic Lines; Analogous Satellite Lines; Midwestern Lines	3570	WISCONSIN CHANNEL, 4th PS; 3570 ± 15 MHz
3420	WISCONSIN CHANNEL, 4th PS; 3420 ± 15 MHz	3600	WISCONSIN CHANNEL, 5th PS; 3600 ± 15 MHz
3450		3630	WISCONSIN CHANNEL, 6th PS; 3630 ± 15 MHz

### The 6 cm Band: 5650 - 5850 MHz

This band is allocated to the following services:

Service	Band	Status
Radiolocation	5650 - 5850	Primary
Amateur	5650 - 5850	Secondary
Space research (deep space)	5650 - 5725	Secondary
Two 20 MHz segments are allotted for amateur satellites; 5650-5670 MHz for uplinks and 5830 - 5850 MHz for downlinks. Amateur stations are required to accept any harmful interference which may be experienced from the operation of industrial, scientific or medical (ISM) equipment.		
The following band plan is proposed for adoption in February 1991. It incorporates a narrow band segment at 5760 MHz, and makes provision for four wideband segments, each 30 kHz wide with 15 kHz separation.		
5650.000 - 5670.000	AMATEUR SATELLITES (uplinks)	
5670.000 - 5760.000	WIDEBAND MODES (note 1)	
5760.000 - 5680.000	FM duplex 80 MHz offset	
5680.000 - 5685.000	FM simplex	
5685.000 - 5690.000	FM REPEATER LINK - PUTS 80 MHz offset	
5690.000 - 5760.000	WIDEBAND MODES	
5760.000 - 5780.000	Channel 1a: FM ATV 5705 ±15 MHz	
5780.000 - 5750.000	Channel 2a: Data links 5735 ±15 MHz	
5750.000 - 5760.000	FM simplex	
5760.000 - 5761.000	NARROW BAND MODES	
5761.000 - 5762.000	EME only	
5762.000 - 5760.000	Terrestrial	
5760.000	Call frequency; all mode secondary	
5760.000	DX	
5760.400 - 5760.500	Beacons: primary segment	
5760.500 - 5760.800	Beacons: secondary segment	
5760.800 - 5761.000	General use, all narrow band modes	
5761.000 - 5763.000	FM SIMPLEX - narrow band output	
5763.000 - 5765.000	FM SIMPLEX - narrow band output	
5765.000 - 5770.000	FM REPEATER LINK DIGITAL 80 MHz offset	
5770.000 - 5830.000	WIDEBAND MODES	
5770.000 - 5800.000	Channel 1b: FM ATV 5785 ±15 MHz	

[illegible]

# Australian Beacons

Please advise any additions or corrections to the Chairman, WIA Federal Technical Advisory Committee, PO Box 300, Caulfield South, Vic 3162.

Freq	Call	Service Area/Loc	ST	N
<b>HF Bands</b>				
3.699	VK2RCW	Sydney	QF56	O (1)
28.260	VKSWI	Adelaide	PF95	O
28.262	VK2RSY	Sydney	QF56	O
28.264	VK6RWA	Perth	QF78	O
28.265	VK4RIK	Cairns	QH23	O
28.266	VK6RTW	Albany	QF84	O
28.268	VK6VF	Darwin	PF87	O
28.270	VK4RTL	Townsville	QH30	O
<b>6 Metre Band</b>				
50.043	VK6RAS	Alice Springs	PG66	? (3)
50.056	VK6VF	Darwin	PF87	O
50.066	VK6RPR	Perth	QF78	O
52.200	VK6VF	Darwin	PF87	O
52.300	VK2RBA	Broken Hill	QF26	P
52.320	VK6RTT	Wickham	QF89	O
52.325	VK2RHW	Newcastle	QF57	O
52.330	VK3RGL	Geelong	QF22	O
52.345	VK4ABP	Longreach	QD26	?
52.350	VK6RTU	Kalgoorlie	PF39	O
52.370	VK7RST	Hobart	QE37	O
52.410	VK1RCC	Canberra	QF44	O
52.420	VK2RSY	Sydney	QF56	O
52.425	VK2RBA	Gunnedah	QF59	O
52.435	VK3RMV	Hamilton	QF12	?
52.440	VK4RTL	Townsville	QH30	O
52.445	VK4RIK	Cairns	QH23	O
52.450	VK6VF	Adelaide	PF95	O
52.460	VK6RPH	Perth	QF78	O
52.465	VK6RTW	Albany	QF84	O

Freq	Call	Service Area/Loc	ST	N
52.470	VK7RNT	Launceston	QE38	O
52.485	VK6RAS	Alice Springs	PG66	O (3)
<b>2 Metre Band</b>				
144.022	VK6RBS	Busselton	QF76	O
144.400	VK4RTT	Toowoomba	QG62	O
144.410	VK1RCC	Canberra	QF44	O
144.420	VK2RSY	Sydney	QF56	O
144.430	VK3RTG	Melbourne	QF22	O
144.435	VK3RMV	Hamilton	QF12	?
144.445	VK4RIK	Cairns	QH23	O
144.445	VK4RTL	Townsville	QH30	O
144.450	VK5VF	Adelaide	PF95	P (4)
144.465	VK6RTW	Albany	QF84	O
144.470	VK7RMC	Launceston	QE38	O
144.480	VK6VF	Darwin	PF87	O
144.485	VK6RAS	Alice Springs	PG66	O
144.530	VK3RGL	Geelong	QF22	?
144.535	VK3RGI	Gippsland	QF02	L
144.550	VK5RSE	Mt Gambier	QF02	?
144.500	VK6RTT	Wickham	QF89	O
144.800	VK5VF	Adelaide	PF95	O (4)
144.950	VK2RCW	Sydney	QF56	O (2)
144.950	VK3RCW	Melbourne	QF22	O (2)
145.000	VK6RPH	Perth	QF78	O
<b>70 cm and Higher Bands</b>				
432.065	VK6RBS	Busselton	QF76	?
432.180	VK6RPR	Perth	QF78	O
432.410	VK1RCC	Canberra	QF44	O
432.410	VK6RTT	Wickham	QF89	?

Freq	Call	Service Area/Loc	ST	N
432.420	VK2RSY	Sydney	QF56	O
432.430	VK3RTG	Melbourne	QF22	L
432.435	VK3RAV	Hamilton	QF12	O
432.440	VK4RSD	Brisbane	QG62	O
432.445	VK4RIK	Cairns	QH23	O
432.445	VK4RTL	Townsville	QH30	O
432.450	VK3RAI	Melbourne	QF22	O
432.465	VK6RTW	Albany	QF84	?
432.530	VK3RGL	Geelong	QF22	T
432.535	VK3RMB	Ballarat	QF12	O
432.545	VK4RAR	Rockhampton	QF56	O
432.565	VK6RTU	Kalgoorlie	PF09	T
1296.198	VK6RBS	Busselton	QF76	O
1296.410	VK1RBC	Canberra	QF44	O
1296.420	VK2RSY	Sydney	QF56	O
1296.440	VK4RSD	Brisbane	QG62	O
1296.445	VK4RIK	Cairns	QH23	O
1296.480	VK6RPR	Perth	QF78	O
2304.420	VK2RSY	Sydney	QF56	P
2304.445	VK4RIK	Cairns	QH23	O
2306.440	VK4RSD	Brisbane	QG62	O
10300.0	VK8RUF	Perth	QF78	?
10368.0	VK3RGC	Melbourne	QF22	T
10445.0	VK4RIK	Cairns	QH23	O

Notes: (1) CW practice beacons.  
(2) CW practice beacons - FM mode.  
(3) To move from 52.485 to 50.043.  
(4) To move from 144.800 to 144.450 in late 1990.

## ARRL DXCC Countries List

NOTE: INDICATES CURRENT LIST OF COUNTRIES FOR WHICH QSLs MAY BE FORWARDED BY THE ARRL MEMBERSHIP OUTGOING QSL SERVICE

NOTE: INDICATES COUNTRIES WITH WHICH US AMATEURS MAY LEGALLY HANDLE THIRD-PARTY MESSAGE TRAFFIC

HOW TO USE THE ARRL OUTGOING QSL SERVICE

- 1) Presort your DX QSLs alphabetically by callign prefix (AP, CE, DL, F, G, JA, LU, PY, SN, SY and so on).
- 2) Enclose the address label from your current copy of QST. The label shows that you are a current ARRL member.
- 3) Enclose payment of \$2 per pound card — approximately 150 cards weigh one pound. A package of ten (10) cards or less costs only \$1. Please pay by cheque (or money order) and write your callign on the cheque. Send "green stamps" (cash) at your own risk.
- 4) Include only the cards, address label and cheque in the package. Wrap the package securely and address it to the ARRL Outgoing QSL Service, 225 Main St, Newington, CT 06111.
- 5) Further details are available from the Outgoing QSL Bureau at ARRL HQ.

Prefix	Country
A2*	Botswana
A3*	Tonga
A4*	Oman
A5	Bhutan
A6	United Arab Emirates
A7*	Qatar
AP-AS*	Pakistan
BV	Taiwan
BT, BT*	China
C2*	Nauru
C3*	Andorra
C5*	The Gambia
C6*	Bahamas/BS-9
CE-9	Mozambique

CA-CE†	Chile
CE9/KG†	Antarctica
CE0†	Eastern I.
CE0†	San Felix
CE0†	Juan Fernandez
CM, CO†	Cuba
CN*	Morocco
CP*	Bolivia
CT*	Portugal
CT3*	Madeira Is.
CV-CX†	Azores
CY9*	Uruguay
CY0*	St Paul I.
D2-3*	Sabre I.
D4*	Angola
DE†	Capo Verde
DA-DL*	Cape Verde
DQ-DZ*	Far Rep of Germany
EA-EH*	Philippines
EA-EH*	Spain
EA-EH*	Balearic Is.
EA-EH*	Canary Is.
EA-EH*	Ceuta and Melilla
EL-3J	Ireland
EL†	Liberia
EP-EO*	Iran
ET*	Ethiopia
FR*	France
FTBW*	Crozet
FTBX*	Kerguelen Is.
FTBZ*	Amsterdam & St Paul Is.
FG*	Guadeloupe
FJ, FS†	Saint Martin
FM†	Mayotte
FM†	New Caledonia
FM†	Maritimes
FO*	Clipperton I.
FO*	Fr Polynesia
FR*	St Pierre & Miquelon
FR/G*	Gioncio Is.
FR/JE*	Juan de Nova, Europa
FR†	Reunion
FR/T*	Tromelin
FW*	Wallis & Futuna Is.
FY*	Fr Guiana
G*	England

GO*	Island of Man
GP*	Northern Ireland
GU*	Jersey
GU*	Scotland
GU*	Guernsey & Dep
GU*	Wales
HA	Solomon Islands
HA, HG*	Hungary
HB*	Switzerland
HB*	Equador
HC-HD†	Galapagos Is.
HCB-HDB†	Haiti
HH†	Dominican Republic
HJ	Colombia
HJ-HK†	Majaplo I.
HK0Y*	San Andreas & Providencia
HK0Y*	Korea
HL*	Panama
HO-HP†	Honduras
HO-HR†	Thailand
HS*	Yatican
HV*	Saudi Arabia
HZ	Italy
IS, IM0*	Sardinia
J2*	Djibouti
JD†	Grenada
J5	Guinea-Bissau
JE†	St Lucia
J7†	Dominica
JE†	St Vincent & Dep
JA-JS*	Japan
JD1†	Minami Torishima
JD1†	Ogasawara
JO†	Mongolia
JW*	Swabert
JK*	Jan Mayen
JY†	Jordan
K, W, N, AA-AA	United States of America
KCE†W	Caroline Is./Bela
KG4†	Guantanamo Bay
KH1†	Baker, Howland Is.
KH2†	Guam
KH3†	Johnston I.
KH4†	Midway Is.

KH5†	Palmyra, Jarvis Is
KH5†	Kingman Reef
KH6†	Hawaiian Is.
KH7†	Kure
KH8†	American Samoa
KH9†	Wake I.
KH0†	Mariana Is.
KL7†	Alaska
KP1†	Navassa I.
KP2†	Virgin Is.
KP4*	Puerto Rico
KP5†	Desecho Is.
LA-LN*	Norway
LO-LW†	Argentina
LO-LW†	Luxembourg
LZ*	Bulgaria
OA-OC†	Peru
OD*	Lebanon
OE*	Austria
OF-OI*	Finland
OH*	Aland Is.
OJ*	Market Reef
OK-OM*	Czechoslovakia
ON-OT*	Belgium
OX*	Greenland
OY*	Faroe Is.
PA	Cosmo Park
P2*	Papua New Guinea
P4-P1†	Netherlands
PA-P1†	Bonaire, Curacao (Neth. Antilles)
PJ, J, 9*	St Maarten, Saba, St Eustatius
PP-PY†	Brazil
PP-PY0†	Fernando de Noronha
PP-PY0†	St Peter & St Paul Rocks
PP-PY0†	Trindade & Martim Vaz Is.
PZ*	Suriname
S2*	Bangladesh
S7*	Seychelles
SA	San Tome & Principe
SO-12*	Western Sahara
SA-SM*	Sweden
SN-SR*	Poland

ST*	Sudan	YV-YY*	Venezuela	11(TY) Only contacts made 1 August 1960, and after, count for this country.	ZD4 <sup>1</sup>	Gold Coast,
STO*	Southern Sudan	YV01*	Aves I	1960 and after, count for this country.	1M <sup>1</sup> , 3 <sup>1</sup>	Topland
SU*	Syria	YV02*	Zanzibar	11(TZ) Only contacts made 20 June 1960, and after, count for this country.	70-VS8K <sup>1</sup>	Minerva Reef
SV-52*	Greece	ZA	Albania	11(VP2) For DXCC credit for contacts made 31 May 1958, and before, see page 97, June 1958 CTS.	824 <sup>1</sup>	Kamaran Is
SV5*	Dodecanese	ZB2*	Gibraltar	11(TZ, V8) Only contacts made 1 January 1967, and after, count for this country.	823, 9K3 <sup>1</sup>	Saudi Arabia/Iraq
SV9*	Crete	ZC01*	UK Sov Base Areas on Cyprus	11(XT) Only contacts made 5 August 1960, and after, count for this country.	954 <sup>1</sup>	Neutral Zone
SV14*	Mount Athos	ZD7	Ascension I	11(TY) Only contacts made 20 June 1960, and after, count for this country.	908 <sup>1</sup>	Neutral Zone
T2 <sup>1</sup> , 11 <sup>1</sup>	Tuvalu	ZD8*	Tristan da Cunha & Gough I	11(SU) Only contacts made 3 August 1960, and after, count for this country.	954 <sup>1</sup>	Saar
T30	Kiribati (Gilbert & Oen Is)	ZD9	Cayman Is	11(XT) Only contacts made 5 August 1960, and after, count for this country.	908 <sup>1</sup>	Ruanda-Urundi
T31	C Kiribati (Brit Phoenix Is)	ZF*	South Cook Is	11(TY) Only contacts made 20 June 1960, and after, count for this country.	954 <sup>1</sup>	Blenheim Reef
T32	Eastern Kiribati (Line Is)	ZK1*	North Cook Is	11(SU) Only contacts made 3 August 1960, and after, count for this country.	908 <sup>1</sup>	Geyer Reef
T33	Bonin Is	ZK2	Niue	11(SU) Only contacts made 3 August 1960, and after, count for this country.		
T5	Samalai	ZK3	Tokelau Is	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
T7	San Marino	ZL*	New Zealand	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TA-TC*	Turkey	ZL8*	Kermadec Is	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TF*	Iceland	ZL9*	Auckland I & Campbell I	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TG, TD*	Guatemala	ZP*	Paraguay	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TH, TE*	Costa Rica	ZR-SU*	South Africa	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TI9*	Cocos I	ZR2-ZU8*	Prince Edward & Marion Is	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TJ	Cameroon		Walvis Bay	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TK1	Comoros	ZS8 <sup>1</sup>	Sov Mil Order of Malta	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TL*	Central African Rep	1A0 <sup>1</sup>	Sprally Is	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TM*	Congo	3A*	Morocco	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TR <sup>1</sup> , 11 <sup>1</sup>	Gabon	3B8, 7*	Agalega & St Brandon	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TT <sup>1</sup>	Chad	3B8*	Mauritius	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TU <sup>1</sup> , 11 <sup>1</sup>	Equatorial Guinea	3B8 <sup>1</sup>	Equatorial Guinea	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
TU <sup>1</sup> , 11 <sup>1</sup>	Berlin	3C0*	Papua I	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UA <sup>1</sup> , 3, 4, 6*	European Russian	3C0*	Fiji	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UA1*	Franz Josef Land	3C0*	Conway Reef	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UA2*	Kalininrgad	3C0*	Guinea	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UB, UT, U*	Asian RSFSR	3C0*	Swaziland	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UD*	Ukraine	3C0*	Tunisia	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UE*	Gylenstian Is	3C0*	Vietnam	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UF*	Azerbaijan	3C0*	Bouvet	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UG*	Georgia	3C0*	Peter I	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UH*	Armenia	3C0*	Maly Vysotski I	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UI*	Turkmenistan	3C0*	St. Louis	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UL*	Uzbekistan	3C0*	TU Geneva	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UM*	Tadzhikistan	3C0*	UHQ, United Nations	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UN*	Kazakhstan	3C0*	Yemen	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UP*	Kirghizia	3C0*	Israel	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UQ*	Moldavia	3C0*	Libya	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UR*	Lithuania	3C0*	Cyprus	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
US*	Latvia	3C0*	Tanzania	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UT*	Estonia	3C0*	Nigeria	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
UV*	Antigua & Barbuda	3C0*	Madagascar	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V1*	Belize	3C0*	Mauritania	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V2*	St Christopher & Nevis	3C0*	Niger	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V3*	(Namibia) SW Africa	3C0*	Togo	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V4*	(E Caroline Is)	3C0*	Western Samoa	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V5*	Morocco	3C0*	Uganda	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V6*	Marshall Islands	3C0*	Kenya	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V7*	Brunei	3C0*	Senegal	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V8*	Canada	3C0*	Jamaica	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V9*	Australia	3C0*	People's Dem Rep of Yemen	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V10*	Lord Howe I	3C0*	Lesotho	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V11*	Wilks I	3C0*	Malawi	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V12*	Christmas I	3C0*	Algeria	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V13*	Cocos-Keeling Is	3C0*	Barbados	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V14*	Mellish Reef	3C0*	Maldives	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V15*	Norfolk I	3C0*	Guyana	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V16*	Heard I	3C0*	Malta	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V17*	Macquarie I	3C0*	Zambia	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V18*	Anguilla	3C0*	Kuwait	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V19*	Morissat	3C0*	Sri Lanka	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V20*	Br Virgin Is	3C0*	Malaysia	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V21*	Turk & Caicos Is	3C0*	East Malaysia	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V22*	Falkland Is	3C0*	Nepal	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V23*	South Georgia Is	3C0*	Zaire	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V24*	South Orkney Is	3C0*	Burundi	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V25*	South Sandwich Is	3C0*	Singapore	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V26*	South Shetland Is	3C0*	Rwanda	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V27*	Bermuda	3C0*	Trinidad & Tobago	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V28*	Chagos	3C0*	Abu Ai, Jabal at Tair	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V29*	Pitcairn I	3C0*	Unofficial prefix.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V30*	Hong Kong	3C0*	11(DA-DL) Only contacts made 17 September 1973, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V31*	India	3C0*	11(YZ) Only contacts made 17 September 1973, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V32*	Andaman & Nicobar Is	3C0*	11(FR) Only contacts made 25 June 1960, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V33*	Laccadive Is	3C0*	11(JD, KA1) Formerly Marcus Island.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V34*	Mexico	3C0*	11(JD, KA1) Formerly Bonin and Volcano Islands.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V35*	Revilla Gigedo	3C0*	11(P2) Only contacts made 16 September 1975, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V36*	Burkina Faso	3C0*	11(TL) Only contacts made 13 August, 1960, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V37*	Kampuchea	3C0*	11(TN) Only contacts made 15 August 1960, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V38*	Laos	3C0*	11(TR) Only contacts made 17 August 1960, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V39*	Macao	3C0*	11(TT) Only contacts made 11 August 1960, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V40*	Myanmar	3C0*	11(TY) Only contacts made 7 August 1960, and after, count for this country.	11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V41*	Myanmar Dem Rep	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V42*	Alghanistan	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V43*	Indonesia	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V44*	Iraq	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V45*	Vanuatu	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V46*	YRK	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V47*	Nicaragua	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V48*	Romania	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V49*	El Salvador	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		
V50*	Yugoslavia	3C0*		11(XV) Only contacts made 20 June 1960, and after, count for this country.		



elies (S7).  
 \*1[V52, V54, ZC5, 9M2] Only contacts made 15 September 1963, and before, count for this country.  
 \*1[V59H] Only contacts made 20 November 1967, and before, count for this country.  
 \*1[ZC6, 4X1] Only contacts made 30 June 1968, and before, count for this country.  
 \*1[Z24] Only contacts made 5 March 1957, and before, count for this country.  
 \*1[M] Only contacts made 15 July 1972, and before, count for this country. Contacts made 16 July 1972, and after, count as Tonga (A3).  
 \*1[TOVS9K] Only contacts made 10 March 1968, and before, count for this country.  
 \*1[B24] Only contacts made 25 December 1982, and before, count for this country.  
 \*1[B25, 9K3] Only contacts made 14 December 1982, and before, count for this country.  
 \*1[B84] Only contacts made 31 March 1957, and before, count for this country.  
 \*1[BUS] Only contacts made 1 July 1960, and before, count for this country. Contacts made 1 July 1962, and after, count as Burundi (BU) or Rwanda (RX).  
 \*1[Bierheim Reef] Only contacts made 4 May 1967 to 30 June 1975, count for this country.  
 \*1[Chagos] Only contacts made 1 July 1975, and after, count as Chagos (VO9).  
 \*1[Geyser Reef] Only contacts made 4 May 1967 to 28 February 1978, count for this country.

PREFIX CROSS REFERENCES

A8 = EL  
 A8 (before 1972) = A5  
 AH = KH  
 AL7 = KL7  
 AM-AO = EA  
 AT-AW = VU  
 AX = JK  
 AY-AZ = LU  
 CF-CK = VE  
 CL = CO  
 CS = CT  
 CR (before 1974) = J5  
 CR8 (before 1978) = D4  
 CR9 (before 1978) = D9  
 CR9 (before 1978) = D2  
 CR7 (before 1978) = D9  
 CR9 (before 1985) = X99  
 CT2 (before 1986) = CU  
 CX - CES/VPB  
 CY-CZ = VE  
 CYO (before 1985) = CY9  
 DM-DT (before 1980) = Y2-9  
 EAD (before 1969) = 3C  
 EA, EM-EO, ER-ES, EU-EZ = U  
 FA-FF (before 1963) = F  
 FA (before 1963) = 7X  
 FB8 (before 1961) = 5R  
 FB8 (before 1985) = FT  
 FC (before 1985) = TK  
 FE8 (before 1961) = 5V  
 FE8 (before 1961) = TJ  
 FJ (before 1978) = J2  
 FUB (before 1982) = YJ  
 GO = G  
 GC (before 1977) = FJ/GU  
 GJ = 5B  
 HS = HP  
 H5 (BOPHUTATSWANA) = ZS  
 H7 = YN  
 HE = HB  
 HM (before 1982) = HL  
 HT = YN  
 HU = VS  
 HW-HT = F  
 J = SV  
 KA1 = JDKA2AA-KA8ZZ = JA  
 KC6 (before 1990) = V6  
 KB6 (before 1979) = KH1  
 KC4 (NAVASA) = KH2  
 KG6 (before 1979) = KP2  
 KG61 (before 1970) = JD1  
 KG6R, S, T (before 1979) = KH0  
 KJ6 (before 1979) = KH  
 KME (before 1979) = KH4  
 KP4 (Deschach) = KP5  
 KP6 (before 1979) = KH5  
 KP6 (before 1979) = KH8  
 KVA (before 1979) = KP2  
 KWS (before 1979) = KH9  
 KX6 (before 1990) = V7  
 L2-9 = LU  
 L3 = YP  
 M1 (before 1984) = T7  
 MP48 (before 1972) = A9  
 MP4M (before 1972) = A4  
 MP4Q (before 1972) = A7

MP4T, D (before 1972) = A6  
 NP = KH  
 NL7 = KL7  
 NH = KP  
 OQ (before 1961) = 9Q  
 PA (before 1986) = PJ  
 PA (before 1970) = C3  
 RA = UA  
 RB-RR = UB-UR  
 RS = U  
 RT = UB  
 RU = OCEANIA = U  
 S4 (Ciskei) = ZS  
 S8 (Transkei) = ZS  
 T4 = CO  
 T5 = CO  
 TH, TM, TO-TQ, TV-TX = F  
 UN, UV, UW, UZ = UA  
 V9 (Vendal) = ZS  
 VA-VG = VE  
 VN-VK  
 VK9 (Nauru) = C2  
 VP1 (before 1982) = V2  
 VPNA (before 1982) = V2  
 VP2 (before 1979) = J7  
 VP2G (before 1975) = J3  
 VP2K (before 1984) = V4 or VP2E  
 VP2L (before 1980) = J6  
 VP2S (before 1980) = J8  
 VP3 (before 1967) = 84  
 VP4 (before 1963) = 9Y  
 VP6 (Jamaica) = 6Y  
 VP6 (before 1967) = 8P  
 VP7 (before 1974) = C6  
 VQ2 (before 1965) = 9J  
 VQ3 (before 1962) = 5H  
 VQ4 (before 1964) = 5Z  
 VQ5 (before 1965) = T2  
 VQ8 (before 1969) = 3B  
 VO8 (Chagos) = VO9  
 VO9 (Seychelles) = S7  
 VR1 (before 1980) = T3  
 VR2 (before 1971) = 3C2  
 VR3 (before 1980) = T32  
 VR4 (before 1979) = H4  
 VR5 (before 1971) = A3  
 VR6 (before 1978) = T2  
 VS1 (before 1966) = 9V  
 VS5 (before 1985) = V8  
 VS7 (before 1949) = 4S  
 VSSA, P, S (before 1968) = 70  
 VSSM = 8Q  
 VSSO (before 1961) = A4  
 VX-VY = CYOVE  
 WH = KH  
 WL7 = KL7  
 WP = KP  
 XJ-XO = VE  
 XQ = CX  
 XQ-XR = CE  
 XV = 3W  
 XX7 (before 1976) = C9  
 YL = UQ  
 ZB1 (before 1965) = 9H  
 ZD1 (before 1962) = 9L  
 ZD2 (before 1961) = 5N  
 ZD3 (before 1966) = C5  
 ZC4 (before 1958) = 9C  
 ZD5 (before 1969) = 3DA  
 ZD6 (before 1965) = 7Q  
 ZE (before 1981) = Z2-9  
 ZF3 (1983) = ZK2  
 ZM6 (before 1963) = 5W  
 ZM7 (before 1984) = ZK3  
 ZS7 (before 1969) = 3D6  
 ZS8 (before 1967) = 7P  
 ZS9 (before 1967) = A2  
 ZC-ZZ = FY  
 3B-3C (before 1968) = VE  
 3D6 (before 1988) = 3DA  
 3S = CE  
 3Z = SP  
 4A-4C = XE  
 4D-4I = DU  
 4J-4L = U  
 4M = YV  
 4N-4O = YU  
 5T = GA  
 4JUVIC = OE  
 4V = HH  
 5J-SK = HK  
 5L-SM = EL  
 6C = YJ  
 6D-6J = XE  
 6Q = TS  
 6T-6U = ST  
 7A-7I = YB  
 7G (before 1967) = 3X  
 7J-7N = JA, JD  
 7S = SM  
 7Z = HZ  
 8A-8I = YB  
 8J-8N = JA

8O = A2  
 8S = SM  
 8U (before 1984) = T7  
 8S = EP  
 9E-9F = ET  
 CONTINENT  
 AF = AFRICA  
 AN = ANTARCTICA  
 AS = ASIA  
 EU = EUROPE  
 NA = NORTH AMERICA  
 OC = OCEANIA  
 SA = SOUTH AMERICA  
 ZONE NOTES  
 (A) 33, 42, 43, 44  
 (B) 67, 68, 74  
 (C) 12, 13, 25, 30, 32, 38, 39  
 (D) 12, 13, 15  
 (E) 19, 20, 29, 30  
 (F) 20-26, 30-35, 75  
 (G) 16, 17, 18, 19, 23  
 (H) 2, 3, 4, 9, 75  
 (I) 55, 58, 59  
 Allocation of International Callsigns  
 Callsign  
 Series Allocated to  
 AAA-ALZ United States of America  
 AMA-AOZ Spain  
 APA-ASZ Pakistan  
 ATA-AWZ India  
 AXA-AXZ Australia  
 AYA-AZZ Argentina  
 A2A-AZ2 Botswana  
 A3A-A3Z Tonga  
 A4A-A4Z Oman  
 ASA-ASZ Bhutan  
 A6A-A6Z United Arab Emirates  
 ATA-A7Z Qatar  
 A8A-A8Z Liberia  
 A9A-A9Z Bahrain  
 A9A-BZZ China  
 CAA-CEZ Chile  
 OFA-CFZ Canada  
 CLA-CMZ Cuba  
 CNA-CNZ Morocco  
 COA-COZ Cuba  
 CPA-CFZ Bolivia  
 CQA-CPZ Portugal  
 CVA-CVZ Uruguay  
 CYA-CYZ Canada  
 C2A-C2Z Nauru  
 C3A-C3Z Andorra  
 C4A-C4Z Cyprus  
 C5A-C5Z Gambia  
 C6A-C6Z Bahamas  
 C7A-C7Z World Meteorological Organization  
 C8A-C8Z Mozambique  
 D4A-DRZ Federal Republic of Germany  
 DSA-DTZ Republic of Korea  
 DJA-DZZ Philippines  
 D2A-D2Z Angola  
 D4A-D4Z Cape Verde  
 D5A-D5Z Liberia  
 D4A-D6Z Comoros  
 D7A-D8Z Republic of Korea  
 EAA-EHZ Spain  
 EIA-EJZ Ireland  
 EKA-EKZ Union of Soviet Socialist Republics  
 ELA-ELZ Liberia  
 EMA-EOZ Union of Soviet Socialist Republics  
 EPA-EQZ Iran  
 ERA-ESZ Union of Soviet Socialist Republics  
 ETA-ETZ Ethiopia  
 EIA-EWZ Byelorussian Soviet Socialist Republic  
 EXA-EXZ Union of Soviet Socialist Republics  
 FAA-FZZ France  
 GAA-GZZ United Kingdom of Great Britain and Northern Ireland  
 HAA-HAZ Hungary  
 HBA-HBZ Switzerland  
 HCA-HCZ Ecuador  
 HFA-HFZ Poland  
 HGA-HGZ Hungary  
 HHA-HHZ Haiti  
 HIA-HIZ Dominican Republic  
 HJA-HJZ Colombia  
 HLA-HLZ Republic of Korea  
 HMA-HMZ Democratic People's Republic of Korea  
 HNA-HNZ Iraq  
 HOA-HPZ Panama  
 HOA-HRZ Honduras  
 HSA-HSZ Thailand

HTA-HTZ Nicaragua  
 HUA-HUZ El Salvador  
 HVA-HVZ Vatican City  
 HWA-HWZ France  
 HZA-HZZ Saudi Arabia  
 H2A-H2Z Cyprus  
 H3A-H3Z Panama  
 H4A-H4Z Solomon Islands  
 H5A-H5Z Nicaragua  
 H6A-H6Z Panama  
 IAA-IJZ Italy  
 JAA-JJZ Japan  
 J7A-J7Z Mongolian People's Republic  
 JWA-JWZ Norway  
 JJA-JJZ Jordan  
 J2A-J2Z Indonesia  
 J3A-J3Z Grenada  
 J4A-J4Z Greece  
 J5A-J5Z Guinea-Bissau  
 J6A-J6Z Saint Lucia  
 J7A-J7Z Dominica  
 J8A-J8Z St Vincent and the Grenadines  
 KAA-KJZ United States of America  
 LAA-LXZ Argentina  
 LXA-LXZ Luxembourg  
 LYA-LYZ Union of Soviet Socialist Republics  
 L2A-L2Z Bulgaria  
 L2A-L2Z Argentina  
 MAA-MZZ United Kingdom of Great Britain and Northern Ireland  
 NAA-NEZ United States of America  
 OAA-OCZ Peru  
 ODA-ODZ Lebanon  
 OEA-OEZ Austria  
 OFA-OFZ Finland  
 OKA-OKZ Czechoslovakia  
 OCA-OTZ Belgium  
 OUA-OZZ Denmark  
 PAA-PJZ Netherlands  
 PJA-PJZ Netherlands Antilles  
 PKA-POZ Indonesia  
 PPA-PYZ Brazil  
 P2A-P2Z Suriname  
 P2A-P2Z Papua New Guinea  
 P3A-P3Z Cyprus  
 P4A-P4Z Aruba  
 P5A-P5Z Democratic People's Republic of Korea  
 (Service abbreviations)  
 PAA-QZZ Union of Soviet Socialist Republics  
 SAA-SMZ Sweden  
 SNA-SNZ Poland  
 SSN-SSZ Egypt  
 SSN-STZ Sudan  
 SUA-SUZ Egypt  
 SVA-SVZ Greece  
 S2A-S3Z Bangladesh  
 S6A-S6Z Singapore  
 S7A-S7Z Seychelles  
 S8A-S8Z Sao Tome and Principe  
 TAA-TCZ Turkey  
 TDA-TDZ Guatemala  
 TEA-TEZ Costa Rica  
 TFA-TFZ Iceland  
 TGA-TGZ France  
 THA-THZ France  
 TIA-TIZ Costa Rica  
 TJA-TJZ Cameroon  
 TKA-TKZ Togo  
 TLA-TLZ Central African Republic  
 TMA-TMZ France  
 TNA-TNZ Congo  
 TGA-TGZ Gabon  
 TRA-TRZ Tunisia  
 TSA-TSZ Chad  
 TTA-TTZ Ivory Coast  
 TUA-TUZ France  
 TYA-TYZ Benin  
 T2A-T2Z Mali  
 T2A-T2Z Tuvalu  
 T3A-T3Z Togo  
 T4A-T4Z Cuba  
 T5A-T5Z Somalia  
 T6A-T6Z Afghanistan  
 T7A-T7Z San Marino  
 UAA-UGZ Union of Soviet Socialist Republics  
 URA-UTZ Ukrainian Soviet Socialist Republic  
 UUA-UUZ Union of Soviet Socialist Republics  
 VAA-VGZ Canada  
 VAA-VNZ Australia  
 VOA-VOZ Republic of Korea  
 VPA-VSZ United Kingdom of Great Britain and Northern Ireland  
 VTA-VWZ India

YAA-VYZ	Canada	ZBA-ZJZ	United Kingdom of Great Britain and Northern Ireland	4PA-4SZ	Sri Lanka	7JA-7NZ	Japan
YAA-VZZ	Australia	ZKA-ZMZ	New Zealand	4TA-4TZ	Pieu	7QA-7QZ	Yemen
YBA-VZZ	Antigua and Barbuda	ZNA-ZOZ	United Kingdom of Great Britain and Northern Ireland	4UA-4UZ	United Nations Organization	7PA-7PZ	Lesotho
YCA-VZZ	Belize			4VA-4VZ	Haiti	7RA-7RZ	Malawi
YDA-VZZ	St Christopher and Nevis			4XA-4XZ	Yemen Arab Republic	7SA-7SZ	Algeria
YEA-VZZ	Monrovia			4YA-4YZ	International Civil Aviation Organisation	7TA-7TZ	Sweden
YFA-VZZ	Marshall Islands					7UA-7UZ	Algeria
YGA-VZZ	Brunei	ZPA-ZPZ	Paraguay	4ZA-4ZZ	Israel	7ZA-7ZZ	Saudi Arabia
YHA-VZZ	United States of America	ZQA-ZOZ	United Kingdom of Great Britain and Northern Ireland	4AA-4AZ	Libya	8AA-8IZ	Indonesia
YIA-VZZ	Canada			4BA-4BZ	Cyprus	8JA-8JZ	Japan
YJA-VZZ	Denmark	ZRA-ZUZ	South Africa	4CA-4CZ	Morocco	8KA-8KZ	Botswana
YKA-VZZ	Chile	ZVA-ZVZ	Brazil	4DA-4DZ	Tanzania	8PA-8PZ	Barbados
YLA-VZZ	China	ZZA-ZZZ	Zimbabwe	4EA-4EZ	Colombia	8QA-8QZ	Maldives
YMA-VZZ	Burkina Faso		United Kingdom of Great Britain and Northern Ireland	4FA-4FZ	Liberia	8RA-8RZ	Guyana
YNA-VZZ	Kampuchea			4GA-4GZ	Nigeria	8SA-8SZ	Sweden
YOA-VZZ	Vietnam	3AA-3AZ	Monaco	4HA-4HZ	Denmark	8TA-8TZ	India
YPA-VZZ	Laos	3BA-3BZ	Mauritius	4IA-4IZ	Madagascar	8UA-8UZ	Saudi Arabia
YQA-VZZ	Portugal	3CA-3CZ	Equatorial Guinea	4JA-4JZ	Mauritania	8VA-8VZ	Iran
YRA-VZZ	Algeria	3DA-3DM	Swaziland	4KA-4KZ	Niger	8WA-8WZ	Ethiopia
YSA-VZZ	Indonesia	3DN-3DZ	Fiji	4LA-4LZ	Togo	8XA-8XZ	Ghana
YTA-VZZ	Iraq	3EA-3EZ	Panama	4MA-4MZ	Uganda	8YA-8YZ	Malta
YUA-VZZ	New Hebrides	3GA-3GZ	Chile	4NA-4NZ	Kenya	8ZA-8ZZ	Zambia
YVA-VZZ	Syria	3HA-3HZ	China		Egypt		Kuwait
YWA-VZZ	Union of Soviet Socialist Republics	3JA-3JZ	Vietnam	4OA-4OZ	Syria	9AA-9AZ	Sierra Leone
YXA-VZZ	Turkey	3KA-3KZ	Guinea	4PA-4PZ	Mexico	9BA-9BZ	Nepal
YYA-VZZ	Nicaragua	3LA-3LZ	Norway	4QA-4QZ	Republic of Korea	9CA-9CZ	Zaire
YZA-VZZ	Romania	3MA-3MZ	Pakistan	4RA-4RZ	Somalia	9DA-9DZ	Ruritania
YBA-VZZ	El Salvador	4AA-4CA	Mexico	4SA-4SZ	Pakistan	9EA-9EZ	Singapore
YCA-VZZ	Yugoslavia	4BA-4BZ	Philippines	4TA-4TZ	Sudan	9FA-9FZ	Malaysia
YDA-VZZ	Venezuela	4CA-4CZ	Union of Soviet Socialist Republics	4UA-4UZ	Senegal	9GA-9GZ	Rwanda
YEA-VZZ	Yugoslavia	4MA-4MZ	Venezuela	4YA-4YZ	Madagascar	9HA-9HZ	Trinidad and Tobago
YFA-VZZ	German Democratic Republic	4NA-4OZ	Yugoslavia	4ZA-4ZZ	Jamaica		
YGA-VZZ	Albania			4AA-4AZ	Liberia		
YHA-VZZ				4BA-4BZ	Indonesia		

The series of call signs with an asterisk indicate the international organisation to which they are allocated.

# Videotape Library

WIA VIDEOTAPE LIBRARY c/- JOHN INGHAM VK5KG  
37 SECOND AVENUE SEPTON PARK SA 5083

Now every radio club can provide its members with quality technical lectures on subjects covering the whole range of amateur radio activities by taking advantage of the WIA Federal Videotape Library. You'll find this a boon, particularly if you're a country club which often has difficulty obtaining a variety of expert lecturers for its regular meetings. (Individual Amateurs and Librarians should take note of the duplication fees at the end of this).

For radio clubs affiliated with the WIA it's inexpensive and easy.

Here's how it works . . .

For those titles for which the WIA does NOT hold a copyright licence, all you have to do is . . .

Supply the Videotape Co-ordinator with a video cassette in a video cassette box "postpaid", and enclose address and stamps for return postage, and the program is free for you to use in support of amateur radio in your area . . . including copying and transmission over the air if you wish.

Those programs which are copyright marked 'c' below, are available only ON LOAN.

To obtain any of them, send with your request . . .

Information about your preferred VCR format; a statement signed by a responsible officer of your club that "I undertake that while (program title) is assigned to me, I will not allow it to be

transmitted over the air, nor copied by any means whatsoever, and that I will return the same promptly after showing".

Enclose address and stamps for postage to you.

The present 'available formats' are as follows :

- \* Standard play 4hr max, or long play 8hr max, as requested
- \* Standard play 4hr max, or long play 8hr max, as requested
- \* Hi-Fi FM sound also present on all VHS cassettes
- Beta — size 160 x 100 x 30mm, mass 300g
- Standard play 3 hr 15min max only
- Standard sound only (no Dolby)
- Video 8 — size 105 x 88 x 20mm, mass 80g
- \* Standard play 1-1/2 hr max, or long play 3hr max as requested
- \* Hi-Fi FM sound is standard (no Dolby).

Obviously, the smaller and lighter the cassette, the less the postage. \* Note: Be sure to request standard or long play, Dolby on or off.

Note to individual amateurs: Since the inception of the WIA Federal Video Service, cassettes have been made freely available to all comers, especially to isolated amateurs. However, recently there has been a rapid rise in the number of requests from individual amateurs, some asking for over 10 hours of programs at a time.

Video duplication is a real-time, one-at-a-time operation for

which the cost of maintenance of the equipment is not small. Obviously the service is much more economical if (say) one tape is seen by 30 members of a club than if each of the 30 members were to request their own personal copy. Indeed, if EVERY member of the WIA requested just ONE program it would take about four years at 40 hours weekly to service!

So, in an effort to encourage requests from groups of amateurs rather than individuals, from now on a duplication fee of \$2 per hour or part thereof will be payable in advance for all requests from individual amateurs. All such fees will go towards upkeep of the duplication equipment.

Note to Librarians: A number of educational institutions have already availed themselves of the technical lecture tapes from the WIA. While this service will continue to be available, from now on a duplication fee of \$10 per hour, or part thereof, will be payable in advance by all institutions not affiliated with the WIA. All such fees will go towards the production costs of future technical lectures.

Note re tape cassette quality: The WIA Videotape Co-ordinator retains the right to refuse to copy onto inferior quality video tape. In the past, such tape has caused many hours of wasted time through clogged heads and, in future, only reputable brands of video tape will be accepted. In particular, although not always in itself a guarantee of quality use only those VHS cassettes which carry the official VHS logo.

# WIA Videotape Program Title Listing as of 1/1/91

See Note	TITLE (In chronological order within each subject grouping)	Lecturer	Prod	Approx Dur	Col/B&W	Year Prod	Description and/or Other Information
	within each subject grouping)			Dur	B&W	Prod	Other Information
c	AMATEUR RADIO — HISTORIC INTEREST			10mins	B&W	1910	Archive material courtesy David Wardlaw VK3ADW
c	Wireless Telegraphy — circa 1910	?		30mins	B&W	1968	Archive material courtesy TEN channel 10
c	Amateur Radio (TV Pilot Program	WIA NSW		50mins	Colour	1977	Archive material
c	Opening of Burley Griffin Bldg — SA HQ	VK5KG		30mins	Colour	1978	Archive material
c	ATV in Australia 1978 — made for British ATV Club	G8CJS		30mins	Colour	1978	Archive material
c	ATV in United Kingdom 1978 — reply from BATC	VK5KG		30mins	Colour	1980	Archive material, still building
c	History of ATV in South Australia			1'42"	Colour	1984	Archive material
c	Opening of Amateur Radio House — NSW HQ	VK2BDN & VKGZOC		2'15"	Colour	1983	Dr David Wardlaw & State Manager DOC
c	VK2 75th Anniversary Seminar Keynote Speeches	WIA NSW		20mins	Colour	1984	Archive material; NO LOAN OR COPY AVAILABLE
c	Heard Island DXpeditions	VK2BCC		60mins	Colour	1986	Raw unedited; from 1986 VK2 Seminar
c	Heard Island DXpedition	WIA NEW					

See Note	TITLE (in chronological order within each subject grouping)	Lecturer	Prod	Approx Dur	Col/ B&W	Year Prod	Description and/or Other Information	
d	AMATEUR RADIO — PROMOTIONAL							
—	The Ham's Wide World	ARRL		27mins	Colour	1969	Superseded by "The World of Amateur Radio"	
—	This is Amateur Radio	ARRL		15mins	Colour	1970	Pitched at teenagers	
—	Moving Up to Amateur Radio	ARRL		11mins	Colour	1975	Pitched at CBers	
c	73Lr DXposition	JARL		60mins	Colour	1976	General Amateur Radio interest; LOAN ONLY	
—	This Week has 7 Days looks into Amateur Radio	HSV7		25mins	Colour	1978	Pitched at teens; includes some ARRL footage	
o	The World of Amateur Radio	ARRL		26mins	Colour	1978	Superseded by "The New World of Amateur Radio"	
—	Amateur Radio — The National Resource of Every Nation	VKSOG		6mins	Colour	1979	Encapsulates ARRL good for public exhibitions	
—	The New World of Amateur Radio	ARRL		28mins	Colour	1988	Supersedes "The World of Amateur Radio"	
c	ANTENNAS							
—	G6CJ's Aerial Circus	G6CJ	WIA	90mins	B&W	1977	THE Definitive Antenna Lecture; LOAN ONLY	
—	Wire Antennas	VKSOG	VKSOG	40mins	B&W	1978	Antennas for HF and Antenna Tuners	
—	Loaded Wire Antennas	VKSNN	VKSOG	50mins	Colour	1980	Using inductive and capacity loaded antennas	
#	Antennas and Directivity	VK2BFF	OTC	73mins	Colour	1985	Lecture given to a group of radio amateurs	
—	Antenna Rotator Systems	VKSJAM	VKSOG	50mins	Colour	1986	Servicing the several different types	
—	Broadband Antennas	VKSOG	VKSOG	62mins	Colour	1986	Includes terminated antennas	
d	ATV — ACTIVITY							
—	ATV in Australia 1980/81 — Made for British ATV Club	VKSOG	VKSOG	60mins	Colour	1980	Clips from ATV Groups in VKs 2,3,4,5,8,8	
o	ATV in United Kingdom 1978/81	G6CJS		30mins	Colour	1981	Remake of its previous effort	
o#	CO ATX DX International 1983	WB2LLB		60mins	Colour	1983	ATV in USA and Europe	
—	ATV in Victoria, 1984	VK3AHJ		45mins	Colour	1984	"Courtney of The Roadshow Gang"	
—	Hello from America! — Made for British ATV Club	WB00CD		100mins	Colour	1988	Clips from ATV Groups in the USA	
n	VKS ATX Call-in July 1990	VKSZBD		90mins	Colour	1990	Recorded off air from VK5RTV	
n	Gladesville ARC AUSSAT TX of 14/11/90	various	VK2ZZO	3 hrs	Colour	1991	Recorded off air from VK5RTV via AUSSAT	
—	ATV — GENERAL INTEREST							
—	Low-Definition Television	Chris Long	VKSOG	25mins	Colour	1982	Re-creation of TV as transmitted by Baird	
—	Model Aero-Nautical Mobile ATV	VKSOG	VKSOG	6mins	Colour	1983	ATV camera & TX mounted in a model aeroplane	
—	VKSRCN — Aust first wind-powered ATV rpt	VKSOG	VKSOG	6mins	Colour	1986	Low level and under VK5RTV	
—	Australian TV History — The Untold Story	Chris Long	VKSOG	55mins	Colour	1988	Lecture to radio amateurs Old Timers Club	
—	Australian TV History — Part 2	Chris Long	VKSOG	49mins	Colour	1988	Technical slides not used in the above	
—	The Development of the TV Test Card	George Hersee	GBPTH	43mins	Colour	1988	Made for BATC by the BBC Training Dept	
a	ATV — TECHNICAL							
—	The Signal to Noise Story	VK3ATY	VK3AHJ	45mins	Colour	1982	Superseded by "UHF Preamplifiers" (below)	
—	UHF Preamplifiers	VK3ATY	VK3AHJ	45mins	Colour	1983	Explanation and demo of low-noise preamps	
—	Getting Started in Amateur Television	VK3KTV	VKSOG	55mins	Colour	1983	How to set up an ATV station	
—	Testing AT Transmitters	VKSOG	VKSOG	50mins	Colour	1983	How to correctly measure ATV systems	
o*	High Definition TV Tutorial	Don Fink	WB2LLB	60mins	B&W	1983	A look at what is to come in Broadcast TV	
o*	ATV Hamfest, York, Pennsylvania, Sept/83	Various	WB2LLB	6hrs	Colour	1983	Various ATV technical lectures from USA	
—	COMPUTERS							
—	Demo of VK5RTV's Micro-Computer Controller #1	VKSOG	VKSOG	10mins	Colour	1979	First u-computer controlled repeater in VK	
o	Understanding Micro-Processors	VKSPE	VKSOG	60mins	Colour	1980	A somewhat dated technical description	
—	An ATV Hamshack Micro-Computer	VK3AHJ	VK3AHJ	10mins	Colour	1981	Describes now unavailable microcomputer kit	
—	Getting Started in Amateur Microcomputers	VKSIF	VKSOG	33mins	Colour	1983	Demo of hard & software for amateur radio	
—	DATA TRANSMISSION							
—	Getting Started in Amateur RTTY	VKSJN	VKSOG	85mins	Colour	1983	RTTY using teleprinters and microcomputers	
—	Amateur Packet Radio	VKSAGR	VKSOG	60mins	Colour	1984	Theory and demonstration	
#	Packet Radio — 10 Months On	VK2KYJ & VK2AB	WIA NSW	65mins	Colour	1985	Raw, unedited; from 75 amv VK2 Seminar	
—	X25 Protocols and Packet Switching	VK2ZXB	OTC	47mins	Colour	1986	Lecture given to a group of radio amateurs	
—	MICROWAVE TECHNIQUES							
—	Introducing Microwaves	Des Cliff	VKSZO	PJ Video	74mins	Colour	1988	"Nuts & Bolts" expert technical lecture
n	(see also Amateur Satellites and Packet Radio)							
—	PROPAGATION							
—	Getting Started in Understanding the Ionosphere	VKSXN	VKSZBD	50mins	Colour	1983	How the ionosphere aids HF communication	
—	VHF Signal Enhancement by Aircraft	VK2ZAB	WIA NSW	70mins	Colour	1986	Raw, unedited; from 1986 VK2 Seminar	
o	SATELLITES							
—	Getting Started in Amateur Satellites	VK5HI & VK5AGR	VKSOG	60mins	Colour	1983	Superseded (see below)	
o	An Introduction to Amateur Satellites (Pt 1)	VKSAGR	VKSOG	60mins	Colour	1984	An overview of amateur satellite working	
—	Micro-Computer Aids to Satellite Tracking (Pt 2)	VKSAGR	VKSOG	30mins	Colour	1984	Programs for tracking & decoding telemetry	
—	Using Phase III Amateur Satellites	VK5HI	VKSOG	90mins	Colour	1984	History, construction & use of high-orbit sats	
—	The AmSat Oscar Phase 3 Story Dr Karl Meinzer	DJ4ZC		80mins	Colour	1985	"The Father of Oscar" includes film of launch	
—	Antennas for Satellites	Dr Trevor Bird	WIA NSW	75mins	Colour	1986	Raw, unedited; from 1986 VK2 Seminar	
n	What Satellites Have to Offer	Gra Ratcliff	VKSAGR	19mins	Colour	1990	Recorded at Hay NSW Satellite Seminar	
n	Am Sats and Packet Radio	Gra Ratcliff	VKSAGR	130mins	Colour	1990	Recorded at Hay NSW Satellite Seminar	
n	AMSAT Ground Control	Gra Ratcliff	VKSAGR	152mins	Colour	1990	Recorded at Hay NSW Satellite Seminar	
—	SPACE — GENERAL INTEREST							
—	Apollo 13 Disaster	VKSJM	VKSOG	90mins	Colour	1990	Australian tracking procedure saved Apollo 13	
o	SSTV Pictures from Space — Voyager	VKSOG	VKSOG	15mins	Colour	1983	SSTV pix converted from Satura fly past	
—	Aussat — Australia's Domestic Comms Satellite	VKSJN	VKSOG	62mins	Colour	1984	Technical description of services offered	
—	Amateur Radio's Newest Frontier	ARRL		26mins	Colour	1985	Amateur radio in space; general PH	
—	Working W5LFL in orbit from VK10RR	Richard Elliot		23mins	Colour	1986	Raw, unedited actuality footage	
—	MISCELLANEOUS							
—	An Auxiliary Battery Charger	VKSXN	VKSOG	30mins	Colour	1981	Charging a second mobile battery	
—	Lecture — Winning Foxhunts	VKSOG	VKSOG	45mins	Colour	1981	How to do it from one who has?	
—	Getting Started in Amateur Construction	VKSJAM	VKSOG	50mins	Colour	1983	Mechanical hints for novice constructors	
—	Common Consequences of Nuclear War	Dr John Coulter	VKSOG	60mins	Colour	1983	How a short-wave broadcaster operates	
—	The Far Eastern Broadcasting Company	VKSOG	VKSOG	60mins	Colour	1983	How the "Australian Woodpecker" works	
—	The Aust "Over the Horizon Radio"	Dr Phil Wilham	VKSOG	60mins	Colour	1984	Geoff is a Dept of Comms Field Officer	
—	What to Expect when the RI Calls	Geoff Carter	DOC	34mins	Colour	1985	Raw, unedited; from 1985 amv VK2 Seminar	
—	Receiver Section Finding for Foxhunters	WIA NSW		13 mins	Colour	1985	Correct assembly of crimp-type BNC plugs	
w	Fitting BNC Connectors	OTC		7mins	Colour	1986	Improving reliability of printed circuits	
w	Handling Static Sensitive PCBs	Paul Tardent	WIA NSW	6mins	Colour	1986	Raw, unedited; from 1986 VK2 Seminar	
—	Logic Licence Grades	VKSOG	VKSOG	70mins	Colour	1986	Disc of modules avail from vk5 via	
—	Thick Film Modules	VKSOG	VKSOG	45mins	Colour	1988	"Nuts & Bolts" expert technical lecture	
—	Quartz Crystals	Clem Tibbock	VKSGL	106mins	Colour	1988	Recorded by Gladesville ARC for NSW WIA	
n	How to Survive in a Dog Pile	John Saunders	VK2EJL	148mins	Colour	1990	Recorded by Gladesville ARC for NSW WIA	
n	HF DX Seminar	Ira & Lee Ock	VK2JAT	74mins	Colour	1990	Recorded by Gladesville ARC for NSW WIA	
n	Making Friends on DX	Syd Molen	VK2SG	28mins	Colour	1990	Recorded by Gladesville ARC for NSW WIA	

NOTE: "c" = Copyright, no copy service. "f" = Optically converted to PAL from NTSC by WB2LLB; noticeable flicker. "w" = available ONLY to radio clubs affiliated with the WIA as per agreement with OTC. "o" = program on disc of data. "r" = new edition.

Standard formats: "Beta", "Video-8" St & L Play, "VHS" St & L Play, "Dolby" and "Hi-Fi" sound — please specify when ordering.

# Australian VHF-UHF Records

Updated 21/12/90

**Key:** EME National EME records  
DIG Digital modes records  
ATV National ATV records  
MOB National mobile records

**National records shown in bold type**

Div	From	To	Date	Distance
<b>6-Metre Band 50-54MHz</b>				
VK2	VK2ASC	VE1ASJ	06/04/81	16554.4
VK3	VK30T	F6HWM	19/10/89	16887.8
VK4	VK4AYX	DL3ZMYV5	18/03/81	15582.0
VK5	VK5KK	XE1GE	09/04/79	14078.0
VK6	VK6BE	JAB8P	30/10/58	8833.0
VK7	VK7IK	W4ECOM	27/04/90	15343.0
VK8	VK8RH	8R1AH	02/04/89	18657.9
DIG	VK4KH2	JH1WHS	27/11/88	7234
<b>2-Metre Band 144-148MHz</b>				
VK1	VK1VP	VK4ZSH	14/12/83	936.4
VK2	VK2R2U	VK6ACOM	13/12/86	2697.9
VK3	VK3YLR/3	VK6KZ/6	23/01/80	2784.2
VK4	VK4ZSH/4	JA7OXL	24/04/83	8616.9
VK5	VK5ZEE	ZL1HH	15/01/86	3458.8
VK6	VK6KZ/6	VK3YLR/3	23/01/80	2784.2
VK7	VK7ZAH	VK4ZAZ	01/01/87	1910.0
VK8	VK4ZSH/8	JA7OXL	24/10/82	6460.9
EME	VK3ATN	K2MWA/2	28/11/86	16761.0
DIG	VK3ZJC	VK3ZQB	28/11/80	268.6
MOB	VK3KAJM	VK6BE	25/01/86	2224.5

<b>70cm Band 420-450MHz</b>				
VK2	VK2ZAB	ZL1AKW	13/01/88	2299.8
VK3	VK3ZB/3	VK6KZ/6	23/01/80	2715.9
VK5	VK4ZSH/4	ZL2TPY	13/01/88	2401.9
VK6	VK6KZ/6	VK3ZB/3	23/01/80	2715.9
VK7	VK7J3	VK3NY	21/05/85	995.0
EME	VK6ZT	K2UYH	29/01/83	18726.4
DIG	VK3ZJC	VK3ZQB	28/11/80	268.6

Div	From	To	Date	Distance
ATV	VK3ZPA/T	VK7EM/T	13/12/72	413.0
MOB	VK3KAJM	VK6BE	25/01/86	2224.5
<b>50cm Band 578-585MHz</b>				
VK2	VK4ZRF/2	VK4ZSH/4	11/12/81	255.4
VK3	VK3ZB/3	VK3KAJM/5	25/02/89	382.9
VK4	VK4ZRF/4	VK4ZSH/4	07/12/81	377.5
VK5	VK3KAJM/5	VK3ZB/3	25/02/89	382.9
VK6	VK6KZ/6	VK6HK	16/01/83	196.4
MOB	VK3KAJM	VK3ZB/3	26/02/89	122.5
<b>23cm Band 1240-1300MHz</b>				
VK1	VK4ZSH/1	VK1VP/2	12/08/90	104.7
VK2	VK2BDN	ZL1AVZ	09/12/82	2132.7
VK3	VK3ZB/3	VK6WG	18/03/88	2449.3
VK4	AX4ND/4	AX4ZT/2	12/04/70	402.05
VK5	VK5MC	VK6KZ/6	23/01/80	2299.4
VK6	VK6WG	VK3ZB/3	18/03/88	2449.3
VK7	VK7ZAH	VK3AKC	17/02/71	439.0
EME	VK6ZT	K2UYH	29/01/83	18726.4
MOB	VK3KOWM	VK3ZJC/M	16/09/89	137.6

<b>13cm Band 2300-2450MHz</b>				
VK2	VK2B/2	VK2B/2	12/05/73	159.9
VK3	VK3ZB/3	VK7HL	12/01/85	427.3
VK5	VK5QR	VK6WG	17/02/78	1885.5
VK6	VK6WG	VK5QR	17/02/78	1885.5
VK7	VK7HL	VK3ZB/3	12/01/85	427.3
<b>9cm Band 3300-3600MHz</b>				
VK2	VK2AHC/2	VK3B/2	16/01/77	114.1
VK3	VK3KAJM/3	VK3ZB/3	25/01/86	244.3
VK5	VK5QR	VK6WG	28/01/86	1885.5
VK6	VK6WG	VK5QR	28/01/86	1885.5

Div	From	To	Date	Distance
<b>6cm Band 5650-5850MHz</b>				
VK1	VK4ZSH/1	VK1VP/2	13/08/90	66.8
VK2	VK4ZSH/2	VK2B/2	29/04/90	144.3
VK3	VK4ZSH/3	VK3ZB/3	14/04/90	89.8
VK4	VK4ZSH/4	VK4ZB/4	22/04/90	173.4
VK5	VK5NT	VK5Z/5	12/11/89	176.4
<b>3cm Band 10-10.5GHz</b>				
VK2	VK2AHC/2	VK2B/2	12/04/75	114.1
VK3	VK3KAJM/3	VK3ZB/3	08/02/86	252.1
VK4	VK4ZNC/4	VK4ZSH/4	09/11/81	170.8
VK5	VK5NT/5	VK5Z/5	10/06/90	214.6
<b>VK2AHC: now VK5ZO</b>				
<b>VK3ZPA: now VK3AU</b>				
<b>VK3YLR: now VK3KAC</b>				
<b>VK3KAC: R Wilkinson (deceased)</b>				

**To apply for a record**  
The following information is required: Date, time, frequency, mode, signals reports and some details of equipment used; signed letters from applicants OR both QSL cards (originals or photocopies certified by another amateur); and the latitude and longitude of both stations.  
All cards and other material will be returned unless the applicant indicates that the material may be kept for WIA records.  
Applicants receive acknowledgement by letter and in "Amateur Radio" and the Call Book. Certificates will also be sent to all new record holders.  
Send applications to the Chairman, WIA Federal Technical Advisory Committee, PO Box 300, Caulfield South, Vic 3162.

## Voice Repeaters

The columns at the right show ERP in watts, height above sea level in metres, timeout time in minutes, and operating status.

Repeater licensees or sponsors are identified by a letter code in the LICENSEE column - see the Licensee list. Any special notes, including linking information where available, are given in the NOTES column. Please send any additions or corrections to the Chairman, FTAC, PO Box 300, Caulfield South, Vic. 3162.

**Key to Status (ST) codes:**  
A = licence application pending  
O = operating  
L = licensed but not on air  
T = testing  
P = planning/development stage

BAND	STATE	OUTPUT FREQ	INPUT FREQ	CALL SIGN	SITE	SERVICE AREA	ST	ERP	HASL	TIME OUT	LICENSEE	NOTES
10 METRE BAND	NEW SOUTH WALES	29.620	29.520	VK2RAH	Woolongong	Melbourne	O				NIL	
		29.640	29.540	VK3RHF	Mt Dandenong		O				YTF	
		29.660	29.560	VK4R??	Brisbane	Adelaide	P	600	2.5		ORC	15
		29.620	29.520	VK5RLZ	Elizabeth		L	50	82		SEL	
		29.680	29.580	VK8RHF	Perth		P				WRG	
6 METRE BAND	NEW SOUTH WALES	53.575	52.575	VK2RJB	Sanctuary Point	Jervis Bay	P				NJB	
		53.575	52.575	VK2RTM	Tamworth	Tamworth	P				NTM	
		53.625	52.625	VK2RSH	Mt Sugarloaf	Newcastle	O	400			NAU	
		53.675	52.675	VK2RMB	Tarney Hills	Sydney	P				NWV	
		53.850	52.850	VK2RWI	Dural	Sydney	O	10	420	3.5	NWI	
	VICTORIA	53.550	52.550	VK3RHH	Wattle Glen	Melbourne	O				VNE	
		53.575	52.575	VK3RDD	Dandenong	Melbourne	O				VSG	
		53.675	52.675	VK3RTN	Lake Mountain	Melbourne	O	25	1500	2.5	VSG	1
		53.900	52.900	VK3RMS	Mt Dandenong	Melbourne	O	60	600	2.5	VWV	
		53.975	52.975	VK3RGM	Mt Buller	Mansfield	O	25	1800	2.5	VSG	5
QUEENSLAND		53.725	52.725	VK4RGA	Amy's Peak	Gladstone	O	25	920		QGL	
		53.725	53.125	VK4RIK	Mt Haren	Cairns	P		480		QTR	
		53.775	52.775	VK4R??	Mackay		P				QMK	

BAND	STATE	OUTPUT FREQ	INPUT FREQ	CALL SIGN	SITE	SERVICE AREA	ST	ERP	HASL	TIME OUT	LICENSEE	NOTES
	WESTERN AUSTRALIA	53.800	52.800	VK6RTH	Tic Hill	Perth	O	10	230		WRG	
	TASMANIA	53.825	52.825	VK7RMD	MtDuncan	NW Tasmania	T	30	600	5.0	TNA	
2 METRE BAND	ACT	146.900 146.950	146.300 146.350	VK1RAC VK1RGI	Black Hill Mt Ginini	Canberra SE NSW	O O	60 50	870 1770	4.0 3.0	AWI AWI	
	NEW SOUTH WALES	146.825 146.850 146.850 146.850 146.875 146.875 146.700 146.700 146.700 146.725 146.750 146.750 146.775 146.800 146.800 146.800 146.825 146.825 146.850 146.850 146.875 146.900 146.900 146.925 146.950 146.975 147.000 147.025 147.050 147.075 147.075 147.100 147.100 147.125 147.150 147.175 147.200 147.200	146.025 146.025 146.050 146.050 146.075 146.075 146.100 146.100 146.100 146.125 146.150 146.150 146.150 146.200 146.200 146.200 146.225 146.225 146.250 146.250 146.275 146.300 146.300 146.325 146.350 146.375 146.400 147.625 147.650 147.675 147.675 147.700 147.700 147.725 147.750 147.775 147.800 147.800	VK2RBB VK2RLD VK2RCH VK2RDX VK2RCV VK2RFT VK2RAO VK2RMU VK2RPM VK2RAG VK2RFS VK2RTM VK2RWG VK2RTZ VK2RCC VK2RIC VK2RIE VK2RIE VK2RHT VK2RHR VK2RAB VK2RAW VK2RNG VK2RMB VK2RAN VK2RRT VK2RGR VK2RNE VK2RAN VK2RWI VK2ROT VK2RBA VK2RCZ VK2RPW VK2RWM VK2RZL VK2RWS VK2RWS VK2RWS VK2RSD VK2RWH	Byron Bay Liverpool Mt Coramba Mt Bindo Terry Hill Sth Grafton Forster Mt Canobolas Little Forest Middle Brother Somerby Mt Mumbulla Mt Crawney Mt Flackney Sugarloaf Pt Coonabarabran Goonellabah Heathcote Mt Kendero Mt Gibraltar Mt Kaputar Mt Murray Griffith Tarney Hills Mt Sugarloaf Boona Pyral Gladesville Mt Rumble Mt Sugarloaf Parramatta Paddington Mt Druitt Mt Druitt Nowendoc Grenfell Mt Arthur Portia St Leonards St Leonards Mt Cambewarra Warners Bay Hunter-New Lane Cove Hornaby Heights Sublime Tamworth Winnalee Cabbage Mt Gray	Lismore Liverpool Colts Harbour Penshurst Inverell Lismore Forster Orange Uladulla Port Macquarie Gosford Merimbula Tamworth Wagga Port Macquarie Coonabarabran Lismore Sydney Tumut Taree Southern Highlands Gunnedah Wollongong Griffith Sydney Newcastle Mount Condobolin Pyral Gladesville Glen Innes Newcastle Sydney Sydney Blue Mts/Napean West Sydney Walcha Grenfell Terahill Statewide Sydney Sydney Nowra England Sydney Sydney Point Wollongong Tamworth Blue Mtns Tree Tuncurry Goulburn	O O O O O P P O 					

BAND	STATE	OUTPUT FREQ	INPUT FREQ	CALL SIGN	SITE	SERVICE AREA	ST	ERP	HASL	TIME OUT	LICENSEE	NOTES
		146.875	146.075	VK4RTA	Longlands	Gap Atherton	O	75	1170		OCA	
		146.700	146.100	VK4RAR	Mt Archer	Rockhampton	O	50	608	4.0	OWI	
		146.700	146.100	VK4RAT	Mt Stuart	Townsville	O	100	584	2.5	QTO	
		146.700	146.100	VK4RGC	Springbrook	Gold Coast	O	50	1040		QGC	
		146.700	146.100	VK4RMI	Four Mile Hill	Mt Isa	O	500	200	3.5	QOI	
		146.725	146.125	VK4RSB	Mt Gordon	Bowen	O	50	20		QBW	
		146.750	146.150	VK4RDD	Mt Lofly	Toowoomba	O	30	715	4.5	QOD	
		146.775	146.175	VK4RDU	Mt Dryander	Macquary/Bowen	O	820			QBU	
		146.800	146.200	VK4RBY	Mt Goorenemans	Bundaberg	O	20	620	4.0	QMK	
		146.800	146.200	VK4RTI	Thursday Is	?						
		146.800	146.200	VK4RWP	Weipa Cape	York	?					
		146.825	146.225	VK4RDT	Gabbinbah	Toowoomba	P	20	723		QOD	
		146.850	146.250	VK4RSC	Buderim	Sunshine Coast	O	40	450		QSC	
		146.875	146.275	VK4RAH	Red Hill	Chinchilla	O	340			QCC	
		146.900	146.300	VK4RIJ	Mt Stradbroke	Ipswich	O	70	120	4.5	QIP	
		146.900	146.300	VK4RGA	Amy's Peak	Gladstone	O	100	1010	4.0	QGL	
		146.925	146.325	VK4RRC	Mount Mee	Redcliffe	O	25	520		QRC	
		146.950	146.350	VK4RBD	Blackdown Tbl	Blackwater	O	25			QCH	
		146.950	146.350	VK4RCA	Bellenden Ker	Calms	O	100	1650	4.0	OCA	
		146.975	146.375	VK4RRR	Blue Mtn	Sarina	O	50	600	3.0	QCH	
		147.000	146.400	VK4RBN	Mt Glorious	Brisbane	O	60	630	2.0	QBV	
		147.000	146.400	VK4RMK	Black Mtn	Macquary	O	25	60	5.0	QMK	
		147.100	147.700	VK4RGY	Mt Boulter	Gympie	O	20	498	4.0	QGY	
		147.150	147.750	VK4RAG	Spring Hill	Brisbane	O	80	90	3.5	QWW	
		147.150	147.750	VK4RWI	portable	statewide	O	50			QWW	
		147.300	147.900	VK4RQT	Mt Glorious	Brisbane	O	50	630	3.5	QSA	
		147.650	147.050	VK4RBT	Mt Cotton	Brisbane	O	50	233	4.5	QAR	19
		147.675	147.075	VK4RBT	Mt Cotton	Brisbane	O	50	233	4.5	QAR	19
		147.825	147.225	VK4RDT	Gabbinbah	Toowoomba	P	20	723		QOD	
		147.825	147.225	VK4REG	Manly West	Brisbane	O	50			QRX	
		147.850	147.250	VK4RCB	Mt Devil	Collinsville	O					
		147.950	147.350	VK4RIJ	Mt Inkerman	Burdekin	O	30	218		QTO	
		147.975	147.375	VK4RWB	Mt Murchison	Biloela	O	25				
SOUTH AUSTRALIA		146.650	146.050	VK5RNC	Naracoorte	Naracoorte	O	25	80	2.5	SWI	
		146.700	146.100	VK5RNM	The Bluff Port	Port	O	55	730	5.0	SWI	3
		146.750	146.150	VK5RAC	Williams Hill	Port Lincoln	O					
		146.800	146.200	VK5RNP	Codrington	Cowell-Eyre Pen	O	60	500	4.0	SWI	3
		146.825	146.225	VK5RBV	Angaston	Barossa Valley	O	100	400	3.5	SBA	4
		146.850	146.250	VK5RHO	Houghton	Adelaide	O	50	410	3.5	SWI	
		146.900	146.300	VK5RMG	The Bluff	Mt Gambier	O	25	100	5.0	SWI	
		147.000	146.400	VK5RAD	Crafters	Adelaide	O	50	610	3.5	SWI	
WESTERNAUSTRALIA		147.925	147.325	VK5RLD	Berri	Riverland	O	25	86	5.0	SWI	
		146.625	146.025	VK6R??	Stirling		P				WRG	
		146.625	146.025	VK6RAT	Forbe Hill	Rottnest Island	P				WRG	
		146.650	146.050	VK6RBY	Bunbury	Bunbury	P	25	20	5.0	WSW	
		146.675	146.075	VK6RCA	Whim Creek	Whim Creek	O				WNW	
		146.675	146.075	VK6RNR	Hudgell	Northampton	O	25	280	4.0	WGE	
		146.700	146.100	VK6RAP	Roleystone	Perth	O	40	360	4.0	WRG	
		146.725	146.125	VK6RAL	Albany	Albany	O				WSG	
		146.750	146.150	VK6RES	Experience	Perth	P				WNW	
		146.750	146.150	VK6RKI	Koolan Island	Koolan Island	O	40	300	5.0	WNW	
		146.750	146.150	VK6RLM	Leamurdie	Perth	O	20	340	4.0	WRG	
		146.800	146.200	VK6RTH	Tic Hill	Perth	O	60	230	4.0	WRG	
		146.800	146.200	VK6RWP	Karratha	Karratha	O				WNW	
		146.825	146.225	VK6RAA	Mt Barker	Albany	O	40	430	3.0	WSG	
		146.850	146.250	VK6REX	Exmouth	Exmouth	O	25	385	3.0	WNW	
		146.850	146.250	VK6RKB	Kambalda	Kambalda	O	30			WGO	
		146.875	146.275	VK6RSR	O'Connor	Perth-Fremantle	P				WSR	
		146.900	146.300	VK6RMV	Mt William	Bunbury	O	20	520	4.0	WRG	
		146.950	146.350	VK6RPO	Fremantle	Fremantle	O	45	65	3.0	WRG	
		146.950	146.350	VK6RSG	Shay Gap	Shay Gap	O				WNW	
		146.975	146.375	VK6REE	Portable	(sec) Statewide	O	20			WRG	
		147.000	146.400	VK6RAK	Kalgoorlie	Kalgoorlie	O	40	400	5.0	WGO	
		147.000	146.400	VK6RAW	Kalgoorlie	Kalgoorlie	O	40			WRG	
		147.000	146.400	VK6REE	Portable (pri)	Statewide	O	20			WRG	
		147.000	146.400	VK6RGN	Geraldton	Geraldton	O	16	400	5.0	WGE	
		147.000	146.400	VK6RNW	Pt Hedland	Port Hedland	O				WNW	
		147.100	147.700	VK6RWC	Millendon	Perth	O				WNA	
		147.125	147.725	VK6RWB	Gin Gin	Gin Gin	O				WNW	11
		147.150	147.750	VK6RMJ	Manjimup	Manjimup	P				WSW	
		147.175	147.775	VK6RIC	Portable emerg	Statewide	O				WWW	
		147.200	147.800	VK6RCT	Catoby	Catoby	O	10	200	4.0	WRG	
		147.225	147.825	VK6RHW	Hoddywell	Toddyay	O	30	450	3.0	WRG	12
		147.250	147.850	VK6RMS	Stoddock	Stoddock	O	20	630	4.0	WRG	
		147.275	147.875	VK6RWM	Wyalkatchem	Wyalkatchem	O	20	400	4.0	WRG	
		147.300	147.900	VK6REN	Ennabba	Ennabba	P				WRG	12
		147.350	147.950	VK6RBN	Busseton	Busseton	O	10	130	4.0	WRG	
TASMANIA		146.625	146.025	VK7RAD	Mt Duncan	NW Tas	O	3	600		TWU	19
		146.700	146.100	VK7RHT	Mt Wellington	Hobart	O	70	1310	3.0	TWS	
		146.750	146.150	VK7RNV	Lonsdale	Tasmania	O	30	160	5.0	TWU	
		146.800	146.200	VK7REC	Snow Hill	East Coast	O	10	970		TEC	
		147.000	146.400	VK7RAA	Mt Searles	Launceston	O	1400			TWU	
		147.075	147.675	VK7RWC	Mt Reid	West Coast	O	10	1200	3.0	TWC	
NORTHERN TERRITORY		147.250	147.850	VK7RAF	Mt Faulkner	Hobart	O	25				
		146.650	146.050	VK8RMS	Nhulunby	Gove	O	25	150		SGR	
		146.700	146.100	VK8RDA	Karama	Karama	O	15	200	8.5	SDA	
		146.950	146.350	VK8RCA	Alice Springs	Alice Springs	O	25	300	3.0	SWI	
		147.000	146.400	VK8RTE	Palmerston	Darwin	O	15	350	8.5	SDA	
70 CM BAND	ACT	438.375	433.375	VK1RIR	Isaacs Ridge	Canberra	O	60	790	3.5	AWI	
		438.525	433.525	VK1RGI	Mt Ginini SE	NSW	O	60	1770	3.5	AWI	
NEW SOUTH WALES		438.025	433.025	VK2RTK	High Range	Southern Highlands	O	40	827	2.0	NSO	
		438.075	433.075	VK2RAG	Somersby	Gosford-Wyong	O	120	323	3.0	NCC	

BAND	STATE	OUTPUT FREQ	INPUT FREQ	CALL SIGN	SITE	SERVICE AREA	ST	ERP	HASL	TIME OUT	LICENSEE	NOTES
VICTORIA		438.125	433.125	VK2RMJ	Little Forest	Milton	L	18	330	3.0	NMS	
		438.175	433.175	VK2RMB	Tarney Hills	Sydney	O	5	150	3.0	NMW	
		438.175	433.175	VK2RINT	Doughboy	Mtn Armidale	O			3.0	NAD	
		438.225	433.225	VK2RPWF	Nowendoc	Walcha	A	25	1450	2.0	NWR	
		438.225	433.225	VK2RWJ	Port Kembla	Wollongong	O	40	120	4.0	NIL	
		438.275	433.275	VK2RWS	Chatswood	Sydney	O	2	140	30s	NWW	
		438.325	433.325	VK2REE	Mt Marie	Taree	O	4	930	3.0	NTR	
		438.325	433.325	VK2RGN	Mt Gray	Goulburn	L	10	750	3.5	NGN	
		438.325	433.325	VK2RWN	Gravelly	Gravelly	P	25	575	3.0	NKW	
		438.375	433.375	VK2RUT	Kumalong	Springwood	O	15	500	3.0	NBM	
		438.425	433.425	VK2RIUH	Hurstville	Sydney	O	25	100	4.0	NSG	
		438.475	433.475	VK2RRS	Chatswood	Gladesville	O	10	50	4.0	NSA	
		438.525	433.525	VK2RPL	Middle Brother	St Macquarie	O	10	552	4.0	NIL	
		438.525	433.525	VK2RWI	Dural	Sydney	O	48	240	3.5	NWI	
		438.625	433.625	VK2RIUM	New Lambton	Newcastle	O	5	50	3.0	NAG	
		438.675	433.675	VK2RAN	Mt Sugarloaf	Newcastle	O	80	300	5.0	NHB	
		438.675	433.675	VK2RSC	Mt Nard	Lismore	O	10	300	3.0	NSU	
		438.675	433.675	VK2RTW	Wilsons Hill	Wagga	? 10				NWG	
		438.725	433.725	VK2RIIL	Sublime Point	Wollongong	O	10	388	4.0	NIL	
		438.275	434.275	VK2RSD	Mt Cambewarra Nowra		P		600		NSH	
		439.375	434.375	VK2RTM	Tamworth	Tamworth	P				NTM	
		439.425	434.425	VK2RCZ	Mt Drutt	West Sydney	L	20	150	3.0	NCA	
		439.575	434.575	VK2RJ8	Sanctuary Point	Jervis Bay	A				NJB	
		438.025	433.025	VK3R??	Melbourne	City	P				VWI	
		438.075	433.075	VK3RMU	Mt St Leonard	Melbourne	O	200	1028	2.5	VWI	
		438.175	433.175	VK3RIUG	Mt Buller	Alexandra	O	80	650	2.5	VSG	1
		438.225	433.225	VK3ROU	Mt Dandenong	Melbourne	O	100	600	2.6	VWI	
		438.275	433.275	VK3RIWE	Portable	Statewide	O	60			VWV	
		438.375	433.375	VK3RGU	Carnarvon	Gippsland	O	60	4.0		VWE	
		438.425	433.425	VK3RCU	Mt Mollagui	Bendigo	O				VWI	
		438.475	433.475	VK3RBU	Mt Hollowback	Ballarat	T	40			VWI	
		438.525	433.525	VK3RAD	Mitchem	Melbourne	O	80	100	2.5	VSG	1
		438.525	433.525	VK3RNU	Mt Stanley	Wangaratta	O	60	1051	2.5	VWI	
		438.525	433.525	VK3RIU	Mitchem	Melbourne	O	50			VWI	
		438.625	433.625	VK3RWI	Portable	Statewide	O	5			VWV	
		438.675	433.675	VK3RWU	Mt William	Grampians	O	100	1170	3.0	VWI	
		438.750	433.750	VK3RHF	Mt Dandenong	Melbourne	O		600	2.5	VTF	15
		439.275	434.275	VK3RMM	Mt Macedon	Melbourne	O	100	1011	3.0	VWV	
		439.375	434.375	VK3RSE	Glen Waverley	Melbourne	O				VSI	
		439.425	434.425	VK3RDU	Mt Worrol	NE Victoria	O	800			VWI	
		439.575	434.575	VK3RGL	Mt Anaki	Geelong	O	60	2.5		VWI	
		439.675	434.675	VK3RZU	Mt Buller	Mansfield	T		1800		VWI	
		439.725	434.725	VK3RPU	Arthur's Seat	Melbourne	O	40		2.5	VWI	
		439.875	434.875	VK3RSU	Mt Major	Shepparton	L				VWI	
QUEENSLAND		438.025	433.025	VK4RTO	Mt Tambourine	Brisbane	O	50	500		OSA	
		438.075	433.075	VK4RSC	Buderim	Sunshine Coast	O	20	450		OSC	
		438.225	433.225	VK4PAT	Mt Stuart	Townsville	O	10	584		QTO	
		438.225	433.225	VK4RDG	Mt Archer	Rockhampton	O	25	608		QWC	
		438.225	433.225	VK4RGC	Springbrook	Gold Coast	O	50	500	3.5	QGC	
		438.375	433.375	VK4RWM	Ipswich Ipswich		O	560			QIP	
		438.425	433.425	VK4RMU	Mt Dryander	Mackay/Bowen	O	820			QMK	
		438.475	433.475	VK4RXX	Maleny SE	Old	O				QRX	
		438.500	433.500	VK4RHR	Drummond	Range Clermont	O	50	520		QCH	
		438.525	433.525	VK4RBC	Mt Cool-tha	Brisbane	O	20	560	2.0	QBV	
		438.625	433.625	VK4RAG	Spring Hill	Brisbane	O	20	90		QWW	
		438.625	433.625	VK4RWI	Portable	Statewide	O	50			QWV	
		438.675	433.675	VK4RBU	Mt Goonaneman	Bundaberg	O	10	620		QBU	
		438.700	433.700	VK4RET	Bunys Mtns	Darling Downs	O	75	1000	5.0	QDA	
		438.825	433.825	VK4RGY	MBoulder	Gympie	O	20	496		QGY	
		438.875	433.875	VK4RMC	Mt Corolla	Gympie	O				QCY	
		438.950	433.950	VK4RBA	Redbank	Palm Redbank	O	10	180		QBA	
		439.275	434.275	VK4RDU	Picnic Point	Toowoomba	O		710		QDD	
		439.350	433.350	VK4RIK	Mt Haren	Calms	O	5	480		QTR	
SOUTH AUSTRALIA		439.900	433.900	VK4RIEX	Darlington	Ra Beenleigh	O	20				
		439.950	433.950	VK4RIY	Mt Kynoch	Toowoomba	O					
		438.325	433.325	VK5ROH	Mt Gambier	Mt Gambier	O	15	135	3.5	SWI	
		438.425	433.425	VK5RBY	Argenton	Barossa Valley	O	100	400	3.5	SBA	4
		438.525	433.525	VK5RVP	Czarlars	Adelaide	O	30	590	3.0	SWI	
WESTERNAUSTRALIA		438.225	433.225	VK6RTH	Tichill	Perth	O		230		WRG	
		438.525	433.525	VK6RUF	Roleystone	Perth	O	20	360		WRG	
		438.675	433.675	VK6RBN	Busselton	Busselton	P	130			WRG	12
TASMANIA		438.500	433.500	VK7RIN	Barren Tier	Central Tas	O	25	1200		TAR	
		438.550	433.550	VK7RAB	Mt Arthur NE	Tasmania	O	8	1190		TW	
		438.600	433.600	VK7RTC	Mt Nelson	Hobart	O	8			TAR	
		438.650	433.650	VK7RAC	Ridgeley NW	Tasmania	O	3	250	5.0	TWU	
NORTHERN TERRITORY		438.275	433.275	VK8RDU	Darwin	Darwin	O	8	200	3.0	SDA	
23CM BAND	NEW SOUTH WALES	1281.100	1293.100	VK2RUB	Sanctuary Point	Jervis Bay	A				NJB	
		1281.750	1293.750	VK2RWI	Dural	Sydney	O	10	240	3.0	NWI	
	VICTORIA	1281.???		VK3RMU	Mt St	Leonard	P		1028		VWI	
	QUEENSLAND	1281.650	1293.650	VK4REX	Darlington	Ra Beenleigh	O	10				
SOUTH AUSTRALIA		1287.???		VK5RWH	Adelaide		O	25	200	3.0	SST	18



# Packet Radio Repeaters and BBS Systems

The columns at the right show ERP in watts, height above sea level in metres, timeout time in minutes, and operating status. Licensees or sponsors are identified by a letter code in the LICENSEE column - see the Licensee list. Please send any additions or corrections to the Chairman, FTAC, PO Box 300, Caulfield South, VIC 3162.

Key to STATUS codes: A = licence application pending O = operating  
L = licensed but not on air T = testing  
P = planning/development stage

Note: In New South Wales, many systems are to move from 147 MHz to 144 MHz. The proposed 44 MHz frequencies are shown, marked P in the STATUS column.

STATE	FREQUENCY	CALL SIGN	SITE	SERVICE AREA	STATUS	ERP	HASL	TIME OUT	LICENSEE	NOTES
ACT	144.800	VK1RGI	Mt Ginini	SE NSW	O	60	1770		AWI	8
NEW SOUTH WALES	144.700	VK2RAB	Mt Kaputar	Tamworth-Narrabri	P				NTM	
	144.700	VK2RAG	Somersby	Gosford-Wyong	P	50	313	3.0	NCC	16
	144.700	VK2RAY	Albury		P				NCC	
	144.725	VK2RDY	Mt Bindo	Blue Mtns West	O	20	1362	3.5	NBS	
	144.750	VK2RAB	Mt Kaputar	Tamworth-Narrabri	P				NTM	17
	144.750	VK2RGN	Goulburn		P				NIL	
	144.750	VK2RTM	Mt Craveney	Tamworth	O				NTM	
	144.775	VK2RAW	Mt Murray	Wollongong	P	50	769	1.0	NIL	16
	144.775	VK2RPW	Nowendoc	Walcha	A				NWR	
	144.775	VK2RWG	Wagga		P					
	144.800	VK2RMS	Tenney Hills	Sydney	O	25	150	10s	NMW	
	144.825	VK2R77	Bathurst		P					
	144.825	VK2RFS	Bega		P					
	144.825	VK2RGF	Mt Bingar	Griffith	P		450		NGR	
	144.825	VK2RPN	Teralba	Newcastle	P	10	400		NWE	16
	144.850	VK2RLO	Mt Lookout		P				NSU	
	144.850	VK2RPT	Mt Tumbarumba		P	20	1231	5.0	NTU	
	144.850	VK2RWI	Dural	Sydney	O	10	240	30s	NWI	
	144.875	VK2RAO	Mt Canobolas	Orange	P	20	1417	30s	NOA	
	144.875	VK2RPL	Mt Nardi	Lismore	P	25	85	3.0	NSU	
	144.875	VK2RMAJ	Mt Bindo	Middle Brother	O		552		NCK	
	144.875	VK2RSD	Mt Cambewarra	Nowra	P		600		NSH	
	144.900	VK2RCC	Needle Mtn	Beaumont	O				NOR	
	144.900	VK2RCH	Mt Coramba	Coffs Harbour	P				NCH	
	144.900	VK2RMU	Mt Coramba	Milton	P				NMS	
	144.900	VK2RPH	Hornsby	Sydney	P	10	200		NHO	
	144.925	VK2RET	Taree		O				NTR	
	144.925	VK2RPS	High Range	Millang	P	50	827		NSO	
	145.050	VK2RPL	Mt Nardi	Lismore	O	25	85	3.0	NSU	
	147.575	VK2RAB	Mt Kaputar	Tamworth-Narrabri	O				NTM	
	147.575	VK2RAO	Mt Canobolas	Orange	O	20	1417	30s	NOA	
	147.575	VK2RAW	Mt Murray	Wollongong	O	50	769	1.0	NIL	16
	147.575	VK2RCH	Mt Coramba	Coffs Harbour	O				NCH	
	147.575	VK2RDY	Mt Bindo	Blue Mtns West	O	20	1362	3.5	NBS	
	147.575	VK2RET	Taree		P				NTR	
	147.575	VK2RGF	Mt Bingar	Griffith	O		450		NGR	
	147.575	VK2RLO	Mt Lookout		O				NSU	
	147.575	VK2RMAJ	Mt Bindo	Milton	O				NMS	
	147.575	VK2RPL	Mt Nardi	Lismore	O	25	85	3.0	NSU	
	147.575	VK2RPN	Teralba	Newcastle	O	10	400		NWE	16
	147.575	VK2RPS	High Range	Millang	O	50	827		NSO	
	147.575	VK2RPT	Mt Tumbarumba		O	20	1231	5.0	NTU	
	147.575	VK2RPW	Mt Grundy	Walcha	O				NWR	
	147.575	VK2RSD	Mt Cambewarra	Nowra	O		600		NSH	
	147.575	VK2RTM	Mt Craveney	Tamworth	O				NTM	
	147.600	VK2RAG	Somersby	Gosford-Wyong	O	50	313	3.0	NCC	16
	439.875	VK2RPL	Mt Nardi	Lismore	P	25	85	3.0	NSU	
	439.075	VK2RAG	Somersby	Gosford	O				NCC	
VICTORIA	144.800	VK3RPK	Red Hill	Melbourne	L	25	240		VWI	
	144.900	VK3RPP	Lysterfield	Melbourne	O	25	100		VWI	
	147.525	VK3RBB	Mt Tassie	Gippsland	T	20	730		VWI	
	147.575	VK3RCU	Mt Molagui	Bendigo	O				VWI	
	147.575	VK3RGU	Canjunga	East Gippsland	T				VWE	
	147.575	VK3RGV	Mt Wombat	Shepparton	O	25	800		VWI	
	147.575	VK3RMU	Mt St Leonard	Melbourne	O	25	1028		VWI	
	147.575	VK3RNU	Mt Stanley	Wodonga	O	25	1051		VWI	
	147.575	VK3RPA	St Albans	Melbourne	O	10	83		VWI	
	147.575	VK3RPC	Mt Warrenheip	Ballarat	O	20	741		VWI	
	147.575	VK3RPG	Mt William	Grampians	O	20	1170		VWI	
	147.575	VK3RPM	Specimen Hill	Bendigo	O	25	240		VWI	
	147.575	VK3RPN	Mt McKay	NE Vic	O		1840		VWI	
	147.575	VK3RPS	Mt Holden	Melbourne	O	25	320		VWI	
	147.575	VK3RPL	Mt Nardi	Melbourne	O	25	320		VWI	
	147.600	VK3RPA	St Albans	Melbourne	T	45	83		VWI	
	147.600	VK3RPC	Mt Warrenheip	Ballarat	O	20	741		VWI	
	147.600	VK3RPS	Mt Holden	Melbourne	O	25	320		VWI	
	430.075	VK3RPP	Lysterfield	Melbourne	L	25	100		VWI	
	439.050	VK3RPA	St Albans	Melbourne	L	25	83		VWI	
	439.050	VK3RPS	Mt Holden	Melbourne	L	25	320		VWI	

STATE	FREQUENCY	CALL SIGN	SITE	SERVICE AREA	STATUS	ERP	HASL	TIME OUT	LICENSEE	NOTES
QUEENSLAND	144.850	VK4RZB	Constitution H	Brisbane	O	20	230		QDG	
	144.900	VK4RAR	Mt Archer	Rockhampton	O		600		QWC	
	144.900	VK4RBD	Blackdown Tld	Blackwater	O				QCH	
	144.900	VK4RBS	Mt Goonzenham	Bundaberg	O		650		QBU	
	144.900	VK4RGA	Amy's Peak	Gladstone	O	25	1010		QCH	
	144.900	VK4RIK	Mt Haren	Cairns	O	10	480		QTR	
	144.900	VK4RZC	Wilkes Knob	Sunshine Coast	O	20	470		QDG	
	144.900	VK4RZE	Mt Mowbrall	Darling Downs	O	50			QDG	
	145.050	VK4RBT	Mt Cotton	Brisbane	O	25	233		QAR	
	147.600	VK4RSA	Maleny	?						
	147.600	VK4RZA	Springbrook	Gold Coast	O	20	940		QDG	
	147.600	VK4RZB	Constitution H	Brisbane	O	20	230		QDG	
	147.600	VK4RZC	Wilkes Knob	Sunshine Coast	O	20	470		QDG	
	147.600	VK4RZE	Mt Penanceance	Towomba	O	20	700		QDG	
	147.600	VK4RZE	Mt Mowbrall	Darling Downs	O	25			QDG	
SOUTH AUSTRALIA	144.850	VK5RSV	O'Halloran Hill	Adelaide	O				SWI	
	147.575	VK5SLZ	Itzaboth	Adelaide	O				SEL	
	147.575	VK5RBP	Roseworthy	Barossa Valley	O				SWI	
	147.575	VK5RMN	The Bluff	Port Pirie	O		730		SWI	9
	147.575	VK5HPM	Mt Graham	Millicent	O	100	225		SER	
	147.575	VK5LW	Crafers	Adelaide	O					10
WESTERN AUSTRALIA	147.600	VK5RPG	Collinswood	Adelaide	O					
	144.850	VK6BBS	Roleystone	Perth	O		360		WTT	
	144.850	VK6R77	Busseton	P					WDC/WRG	
	144.850	VK6RAA	Mt Barker	Albany	O		430		WSS	
	144.850	VK6RAP	Roleystone	Perth	O		360		WDC/WRG	
	144.850	VK6RAW	Fairfield	Katanning	O				WKA	
	144.850	VK6RDT	Tic Hill	Perth	P		230		WDC/WRG	
	144.850	VK6RMS	Saddleback	Boddington	O		630		WDC/WRG	
TASMANIA	147.575	VK7RED	Snow Hill	East Coast	?		970		TEC	
	147.575	VK7RIT	Mt Nelson	Hobart	O				TWI	
	147.575	VK7RTY	Mt Barrow	Northern Tasmania	O		1400		TWI	
NORTHERN TERRITORY	147.600	VK8BBS	Alice Springs	Alice Springs	O				SAL	

# Index of Repeater and Beacon Licensees

STATE	REF	LICENSEE	NW/H NW/I NWR NWW	WIA Hunter Branch WIA NSW Div Walcha Radio Grp VK2 WICEN	QWI QWW	WIA Qld Div VK4 VICEN	
VK1 ACT	AWI	WIA ACT Division			VK5 SOUTH AUSTRALIA	SBA SCN SEL SER SSC SST STV SWI	Barossa ARC Cent North ATV Grp Elizabeth ARC SE Radio Group South Coast ARC Southern ATV Group SA ATV Group WIA SA Div
VK2 NEW SOUTH WALES			VBA VCG VEC VGG VNE VSA VSG VSH VSU VTF VWE VWI VWM VWW VWX VWY VWZ	Ballaarat AR Group Camberwell Grammar School EMCRC Gippsland Gate RC North East ARG Vic Scout Assoc Six Metre E. Group Swan Hill DARC SE UHF Repeater Grp 10m FM Group WIA Eastern Zone WIA Vic Div WIA Midland Zone VK3 WICEN WIA NW Zone WIA NE Zone WIA Western Zone	VK6 WESTERN AUSTRALIA WDC WES WGE WGO WKA WNW WPT WRG WSA WSG WSR WSW WTT WVH WWA WWI WWK WWW	WAADCA Esperance ARS Geraldton ARC Goldfields ARC Katanning ARC Northwest ARS Perth TV Group WA Repeater Group WA Signals ARG Southern Elec Grp Southern River Grp Southwest ARG Think Tank Western ARS WIA WA Div Wickham ARC VK5 WICEN	
			VK4 QUEENSLAND QAR QBA QBU QBW QCA QCC QCH QDA QDD QDG QGL QGY QIP QJA QMK QRC QRO QRX QSA QSC QTO QTR QWC	QARLATA Brisbane ARC Bundaberg ARC Brisbane VHF Group Bowen RAG Cairns ARC Chinchilla RC Central Highlands ARC Dalby DARC Darling Downs RC Old Digital Group Gold Coast ARS Gladstone ARC Gympie ARC Ipewich RC Mt Isa DARG Mackay ARC Redcliffe RC Roma DARS Radio Exp. Group SEQ ATV Group Sunshine Coast ARC Townsville ARC Old Tropical VHF Ass. WIA Cent Old Branch	VK7 TASMANIA TEC TMC TNA TWI TWN TWS TWU TWW	East Coast ARC Aust Maritime Coll. NW ATV Group WIA Tas Div WIA Northern Branch WIA Southern Branch WIA NW Branch VK7 WICEN	
					VK8 NORTHERN TERRITORY	SAL SDA SGR	Alice Springs ARC Darwin ARC Cove Repeater Grp

# ATV Repeaters

The columns at the right show ERP in watts, height above sea level in metres, timeout time in minutes, and operating status. Licensees or sponsors are identified by a letter code in the LICENSEE column - see the Licensee list. Please send any additions or corrections to the Chairman, FTAC, PO Box 300, Caulfield South, VIC 3162.

Key to STATUS codes:

A = licence application pending  
O = operating  
L = licensed but not on air  
T = testing  
P = planning/development stage

OUTPUT FREQUENCY	INPUT FREQUENCY	CALL SIGN	SITE	SERVICE AREA	STATUS	ERP	HASL	TIME OUT	LICENSEE NOTES
426.250	444.250	VK2RWI	Parramatta	Sydney	P				NWI
579.250	444.250	VK2RTW	Willans Hill	Wagga	O	10	300	30	NWG
579.250	426.250	VK2RPM	Middle Brother	Port Macquarie	O				NOX
579.250	444.250	VK2RTG	Kanong	Gosford	O	90	220		NCC
579.250	426.250	VK2RTN	Sugarloaf Ra	Newcastle	O				NLH
579.250	426.250	VK2RTS	Springwood	Springwood	O	300	370	3.0	NSA
579.250	444.250	VK2RTV	Lane Cove	Sydney	O	100	60		NGA
579.250	1250.000	VK2RAG	Somersby	Gosford	O				NCC
579.250	426.250	VK3REX	Swan Hill	?					
579.250	426.250	VK3RMZ	Mt Alexander	Bendigo	O				VWM
579.250	444.250	VK3RNE	Mt Big Ben	Woodong	O				VWY
579.250	444.250	VK3RTV	Mt Dandenong	Melbourne	O		600		VWI
579.250	426.250	VK4RTV	Spring Hill	Brisbane	O	100	140		QSA
579.250	444.250	VK5RCN	Barunga Range	Central North	O	10	400	30	SCN
579.250	426.250	VK5RTV	O'Halloran Hill	Adelaide	O	200	200	30	STV
1246.250	444.250	VK5RWH	Willunga Hill	Southern Vales	O	40	200	30	SSC
579.250	444.250	VK6RAP	Perth		T				WRG/WPT
426.250	444.250	VK7RTV	Mt Duncan	NW Tasmania	O	5	600	30	TNA
579.250	444.250	VK7RAE	Kelcy Tiers	NE Tasmania	O	5	220	30	TNA

# RTTY Repeaters

The columns at the right show ERP in watts, height above sea level in metres, timeout time in minutes, and operating status. Licensees or sponsors are identified by a letter code in the LICENSEE column - see the Licensee list. Please send any additions or corrections to the Chairman, FTAC, PO Box 300, Caulfield South, VIC 3162.

Key to STATUS codes:

A = licence application pending  
O = operating  
L = licensed but not on air  
T = testing  
P = planning/development stage

OUTPUT FREQUENCY	INPUT FREQUENCY	CALL SIGN	SITE	SERVICE AREA	STATUS	ERP	HASL	TIME OUT	LICENSEE NOTES
146.675	146.075	VK2RTY	Blacktown	Sydney	O	40	72	10	NAN
146.975	146.375	VK2RAN	Mt Sugarloaf	Newcastle	O	10	300	5.0	NhB
147.275	147.875	VK2RIL	Sublime Point	Wollongong	O	25	398	4.0	NIL
438.325	434.325	VK2RTY	Blacktown	Sydney	P	40	72	10	NAN
147.325	147.925	VK3RBB	Mt Tassie	Gippsland	O	40	600	10	VWI
147.350	147.950	VK3RTY	Olinda	Melbourne	O				QAR
147.650	147.050	VK4RBT	Mt Cotton	Brisbane	O	50	233		QAR
147.875	147.075	VK4RBT	Mt Cotton	Brisbane	O	50	233	4.5	QAR
146.675	146.075	VK5RSV	O'Halloran Hill	Adelaide	O	25	200	10	SSC
147.050	147.650	VK6RTG	Roleystone	Perth	O	15	360	10	WRG
146.625	146.025	VK7RAD	Mt Duncan	NW Tasmania	O	30	600	5.0	TWU

## Index of Repeater and Beacon Listing Reference Notes as at 21 January 1991

Ref Note	7	Can be linked to VK5RCN on command: control link 147.3. Link video input 444.25, extra audio input 147.4. SSTV input 147.350.	15	VK3RHF 10-metre repeater link on 438.750 also operates as a repeater in its own right. Tone access 141.3Hz.
No	8	4800 baud.	16	To remain on 147MHz until Channel 5A closes.
1	9	Directional beam, aimed south.	17	Temporary allocation.
2	10	Callsign to become VK5RAD.	18	Frequencies under review.
3	11	77Hz tone access.	19	RTTY — voice repeaters.
4	12	There are plans to link VK6RCT, VK6RWH and VK6RWM to VK6RUF.	20	SSTV — voice repeater.
5	13	After 15 seconds of inactivity, a carrier of at least two-seconds duration is required to regain access.	31	CW practice beacons.
6	14	VK2RAG (146.725) and VK2RWS (147.150) are linked.	32	CW practice beacons — FM mode.
			33	To move from 52.485 to 50.043.
			34	To move from 144.800 to 144.450 in late 1990.

# Acronyms and Abbreviations Used in Amateur Radio

Most of the following letter combinations have been used in amateur radio during the past year or two. In most cases their meanings have been given at the time. Nevertheless, we feel that a comprehensive list is long overdue. We make no claims about its completeness, and would welcome any additions that readers might like to contribute. The list includes all amateur societies affiliated with IARU.

AAEP	Australian Amateur Packet Radio Association
AARC	Aruba Amateur Radio Club
AARPC	Australian Amateur Radio Postcode (Award)
AAFT	Addressable Asynchronous Receiver Transmitter
AARTS	Australian Amateur Radio Teletypewriter Group
ABARS	Antigua and Barbuda Amateur Radio Society
ABC	Australian Broadcasting Corporation
ABS	Acrylonitrile Butadiene Styrene (a tough plastic)
AC	Alternating Current
ADC	Analog to Digital Converter Aide de Camp
ACW	Anti-Clockwise
AF	Audio Frequency
AFS	Automatic Frequency Control
AFI	Audio Frequency Interference
AFRTS	Armed Forces Radio and Television Service
AFSK	Audio Frequency Shift Keying
AFVIL	Amateur Funk Verein Liechtenstein
AGC	Automatic Gain Control
AGM	Annual General Meeting
AGRA	Association Gabonaise des Radio Amateurs
AHARS	Adelaide Hills Amateur Radio Society
ALARA	Australian Ladies' Amateur Radio Association
ALC	Automatic Level (or Load) Control
AM	Amplitude Modulation
AMSAT	Amateur Satellite (Organisation)
AMTOR	Amateur Microprocessor Teletypewriter Over Radio
ANARE	Australian National Antarctic Research Establishment
ANARC	Australian National Amateur Radio Teletypewriter Society
ANERCOM	American National Emergency Response Committee
ANZA	Australian, New Zealand, African (net)
AOC	Air Officer Commanding
AOPC	Amateur Operator's Certificate of Proficiency
AOS	Acquisition of Satellite (or Signal)
APC	Automatic Phase Control
APG	Australian Preparatory Group
APT	Automatic Picture Transmission
ARA	Amateurs Radio Algeriens
ARAB	Amateur Radio Association of Bahrain
ARAD	Association des Radio Amateurs de Djibouti
ARA	Association des Radio Amateurs Ivoiriens (Ivory Coast)
ARAS	Association des Radio Amateurs du Senegal
ARCOT	Amateur Radio of Tonga
ARDF	Amateur Radio Direction Finding
ARIDX	Australian Radio DX Club
AREM	Amateur Radio Experiment on Mir
ARGP	Argument of Perigee
ARI	Associazione Radioamatori Italiani
ARM	Association des Radio Amateurs de Monaco
ARPM	Association Royale des Radio Amateurs du Maroc
ARRL	American Radio Relay League
ARRSM	Associazione Radioamatori della Repubblica di San Marino
ARSB	Amateur Radio Society of Barbados
ARS	Amateur Radio Society of India
ASCII	American Standard Code for Information Interchange
ASEAN	Association of South East Asian Nations
ATN	Amateur Traffic Net
ATU	Antenna Tuning Unit
ATV	Amateur Television
AVC	Automatic Volume Control
AWA	Amalgamated Wireless Australia
BARC	Barbados Amateur Radio Club
BARG	Bahamas Amateur Radio Group
BARL	Bangladesh Amateur Radio League
BARF	Barbados (also Botswana) Amateur Radio Society
BARTS	Burma Amateur Radio Teletypewriter Society
BARTS	Burma Amateur Radio Teletypewriter Society
BASIC	Beginners' All-purpose Symbolic Instruction Code
BATC	British Amateur Television Club
BBC	British Broadcasting Corporation
BBS	Bulletin Board System (or Service)
BCD	Binary Coded Decimal
BCI	Broadcast Interference
BCRA	(Negra) Brunei Darussalam Amateur Radio Association
BCF	Beat Frequency Oscillator
BFRA	Bulgarian Federation of Radio Amateurs
BGB	Burley Griffin Building (VKS Div)
B-MAC	Multiplexed Analog Components (version B) (used for satellite TV)
BNC	Bayonet N Connector
BOPC	Broadcast Operator's Certificate of Proficiency
BPSK	Binary Phase Shift Keying
BRAMSAT	Brazilian Amateur Radio Society (Organisation)
BSS	Broadcast Satellite Service
BVRL	British Virgin Islands Radio League
BYLARA	British Young Ladies' Amateur Radio Association
CAA	Civil Aviation Authority

CAD	Computer Aided Design
CAM	Computer Aided Manufacture
CARF	Canadian Amateur Radio Federation
CARS	Cyprus Amateur Radio Society (also Cayman ditto)
CASST	Center for Aero-Space Technology (Ogden, Utah)
CAT	Computer Aided Teletypewriter
CATV	Community Antenna Television
CBRS	Citizens' Band Radio Service
CCD	Charge-Coupled Device
CCIR	Comité Consultatif International des Radiocommunications
CCITT	Comité Consultatif International des Telegraphes et Telephones
CDI	Civil Defence Compact Disc
CDI	Capacitor Discharge Ignition
CEPT	Comité Européenne des Postes et Télécommunications
CGA	Colour Graphic Adapter
CHARC	Central Highlands Amateur Radio Club
CISPR	Comité International Spécial des Perturbations de Radio
CLARA	Canadian Ladies' Amateur Radio Association
CMOS	Complementary Metal Oxide Silicon
COR	Carrier Operated Relay
CORA	Club Océanien de Radio et d'Astronomie (Fr Polynesia)
COSPAS	(Russian acronym for Space Search System, Vessels in Distress)
CPI	Consumer Price Index
CPIM	Control Program/Microcomputer
CPU	Central Processing Unit
CRAG	Club de Radioaficionados de Guatemala
CRAS	Club de Radioaficionados de El Salvador
CRCC	Central Radio Club of Czechoslovakia
CROC	Club de Radioexperimentadores de Nicaragua
CRO	Cathode Ray Oscilloscope
CRRL	Canadian Radio Relay League
CRSA	Chinese Radio Sports Association
CRT	Cathode Ray Tube
CSIRO	Commonwealth Scientific & Industrial Research Organisation
CSK	Countersunk
CTCSS	Continuous Tone Code Squelch System
CTDXA	Connecticut DX Association
CW	Continuous Wave Clockwise
DAC	Digital to Analog Converter
DARC	Deutscher Amateur Radio Club (also Dominica)
DBS	Direct Broadcasting by Satellite
DC	Direct Current Direct Coupled
DCE	Digital Communications Experiment
DDRC	Darling Downs Radio Club
DDRR	Directional Discontinuity Ring Radiator
DDS	Direct Digital Synthesis
DF	Direction Finding
DIL	Dual In-Line
DIN	Deutsche Industrie Norm (German standard)
DIP	Dual In-Line Package
DMA	Direct Memory Access
DMM	Digital Multi-Meter
DCS	Disk Operating System
DoTC	Department of Transport and Communications
DOVE	Digital Orbiting Voice Encoder
DPDT	Double Pole Double Throw
DPM	Digital Panel Meter
DPST	Double Pole Single Throw
DRAM	Dynamic Random Access Memory
DSB	Double Side-Band
DSP	Digital Signal Processing
DTL	Diode Transistor Logic
DTMF	Dual-Tone Multi-Frequency
DVM	Digital Volt-Meter
DX	Distance
DXCC	DX Century Club
DYLC	Deutsche Young Ladies' Club
EARS	Egyptian Amateur Radio Society
ELC	Emitter-Coupled Logic
EDAC	Error Detection and Correction
EDP	Electronic Data Processing
EDR	Ekspertimentendanske Radioamatører (Denmark)
ECC	European Economic Community
EGA	Enhanced Graphics Adapter
EHT	Extremely High Tension
EIA	Electronic Industries Association
ERIP	Effective (or Equivalent) Isotropic Radiated Power
ELF	Extremely Low Frequency (300 to 3000 Hz)
ELT	Emergency Locator Transmitter
EMC	Electro-Magnetic Compatibility
EMDR	Eastern & Mountain Districts Radio Club
EMI	Electro-Magnetic Interference
EMP	Electro-Magnetic Pulse
ENGOM	Electronic News Gathering
EPROM	Electrically Erasable Programmable Read Only Memory
EQX	Equator Crossing
EPRB	Emergency Position Indicating Radio Beacon
ERP	Effective Radiated Power
ESA	European Space Agency
ESO	Electro-Static Discharge

# YAESU

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See A.R.A. review Vol 12, Issue 5, or A.R. review Aug '89 issue.

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Cat D-3351	FNB-14 7.2V 1000mA/H high capacity NiCad	\$99
Cat D-3355	CA-2 Desk Charging stand - use with plug pack charger	\$39 <sup>95</sup>
Cat D-2115	MH-12A2B Speaker/Microphone	\$59 <sup>95</sup>

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FACTS	Federation of Australian Commercial TV Stations	LNA	Low-Noise Amplifier
FALCOS	Frankston And Mornington Peninsula Amateur Radio Club	LO	Local Oscillator
FARA	Fiji Association of Radio Amateurs	LOS	Loss of Satellite (or Signal)
FARWP	Future of Amateur Radio Working Party	LPRA	Liga Panamena de Radioaficionados
FAX	Facsimile	LRAA	Liberian Radio Amateurs' Association
FCC	Federal Communications Commission (USA)	LREM	Liga dos Radio Emissores de Mocambique
FQCM	Federal Contest Manager	LSB	Lower Sideband
FET	Field Effect Transistor	LSI	Large Scale Integration
FFT	Fast Fourier Transform	LTA	Lighter Than Air
FWC	Federal Intruder Watch Co-ordinator	LWIAW	Light Weight Air Warning
FM	Frequency Modulation		
FOC	First/Class Operators' Club/Flag Officer Commanding	mA (mV)	Milliampere (millivolt) etc
FOV	Field of View	MAC	Multiplexed Analog Components (Satellite TV System)
FRA	Feroyskir Radio-Amatorar (Faroe Is)	MAE	Malta Amateur Radio League
FRG	Federacion de Radioaficionados de Cuba	MARS	Mauritius (or Monserrat) Amateur Radio Society
FRM	Federatia Romana de Radioamatorism (Romania)		Military Affiliated Radio Service
FSD	Full Scale Deflection	MARTS	Melayan Amateur Radio Transmitters' Society
FSK	Frequency Shift Keying	MASER	Microwave Amplification by Stimulated Emission of Radiation
FTAC	Federal Technical Advisory Committee	MB	Megabyte
		MCW	Modulated Continuous Wave
GARA	Guyana Amateur Radio Association	MDS	Minimum Detectable Signal/Multipoint Distribution System
GARC	(Geelong, Gladstone, Grenada) Amateur Radio Club	MF	Medium Frequency (300 kHz to 3 MHz)
GARS	(Ghana, Gibraltar) Amateur Radio Society	MHz	Megahertz
GCR	General Certification Rule	MMIC	Miniature Microwave Integrated Circuit
GDO	Grid (or Gate) Dip Oscillator	MODEM	Modulator-Demodulator
GEOS	Geological (research) Satellite	MODS	Modifications
GQREC	Gippsland Gate Radio & Electronics Club	MOS	Metal Oxide Silicon
GHz	Gigahertz	MOSFET	Metal Oxide Silicon Field Effect Transistor
GOC	General Officer Commanding	MOX	Manually Operated Changeover
GOES	Geostationary Operational Environmental Satellite	MPRGI	Melbourne Packet Radio Group Inc
		MRASZ	Magyar Radioamatör Szövetség (Hungary)
HARG	Hills (WA) or Healesville (Vic) Amateur Radio Group	MS-DOS	Microsoft's Disk Operating System
HARTS	Hongkong Amateur Radio Transmitting Society	MTBF	Mean Time Between Failures
HDLC	High Level Data Link Control	MUF	Maximum Usable Frequency
HDTV	High Definition Television	NAND	Not And
HF	High Frequency (3 to 30 MHz)	NACCP	Novice Amateur Operator's Certificate of Proficiency
HFBC	High Frequency Broadcasting Conference	NARS	Nigerian Amateur Radio Society
HMSO	Her Majesty's Stationery Office	NASA	National Aeronautics & Space Administration
HT	High Tension Handy Talky Hand Transceiver	NASDA	National Space Development Agency (Japan)
HTA	Heavier Than Air	NBFM	Narrow Band Frequency Modulation
		NBS	National Bureau of Standards
IARC	Israel Amateur Radio Club	NCDXF	Northern California DX Foundation
IARN	International Amateur Radio Network	NCRG	Northern Corridor Radio Group (Perth)
IARU	International Amateur Radio Union	NDB	Non-Directional Beacon
IARUMS	IARU Monitoring Service	NEC	Nippon Electric Company
IBM	International Business Machines	NERG	North East Radio Group (Melbourne)
IC	Integrated Circuit	NICAD	Nickel Cadmium (cell or battery)
IDC	Identification	NOAA	National Oceanic & Atmospheric Administration
IEA	International Data Connector	NOC	Network Operations Centre
IEC	International Electrotechnical Commission	NORAD	North (American) Air Defence
IEE	Institution of Electrical Engineers	NFO	Negative Positive Zero
IEEE	Institution of Electrical & Electronic Engineers	NRRL	Norsk Radio Relae Liga (Norway)
IF	Intermediate Frequency	NRZ	Non Return to Zero
IHU	Integrated Housekeeping Unit	NRZI	Non Return to Zero Inverted
KOC	Index of Co-operation	NTSC	National Television Systems Committee
IPHA	Information Program for Handicapped Amateurs	NZART	New Zealand Association of Radio Transmitters
IPRS	Ionospheric Prediction Service	NZRSF	New Zealand Radio Frequency Service
IR	Infra Red		
IRA	Istlenkir Radioamatorar (Iceland)	OM	Old Man
IRC	International Reply Coupon/International Resistance Co	ORARI	Organisasi Radio Amatir Republik Indonesia
IREE	Institution of Radio & Electronic Engineers	OSCAR	Orbital Satellite Carrying Amateur Radio
IRTS	Irish Radio Transmitters' Society	OTC	Overseas Telecommunications Commission
ISB	Independent Side-Band	OTHR	Over The Horizon Radar
ISD	International Subscriber Dialling	OVSV	Oesterreichischer Versuch-Sender-Verband (Austria)
ISDN	Integrated Services Digital Network	PA	Power Amplifier: Public Address
ISO	International Standards Organisation	PABX	Private Automatic Branch Exchange
ITHE	International Travel Host Exchange	PACSAT	Packet (radio) Satellite
ITT	International Telegraph & Telephone	PAL	Phase Alternating Line (TV colour system)
ITU	International Telecommunications Union	PARA	Philippine Amateur Radio Association
IW	Intruder Watch	PARS	Pakistan Amateur Radio Society
IWP	Interim Working Party	P(R)IBBS	Packet (Radio) Bulletin Board Service (System)
		PC	Printed Circuit
JAMSAT	Japan Amateur Satellite (organisation)	PCA	Point of Closest Approach
JARA	Jamaica Amateur Radio Association	PCB	Printed Circuit Board
JARL	Japan Amateur Radio League	PEP	Peak Envelope Power
JFET	Junction Field Effect Transistor	PET	Polyethylene Terephthalate (used for plastic bottles)
JIWP	Joint Interim Working Party	PIN	Positive-Intrinsic-Negative
JLRS	Japan Ladies' Radio Society	PIR	Passive Infra Red
JMFD	Joyn Moyle (Memorial National) Field Day	PLL	Phase-Locked Loop
JOTA	Jamboree On The Air	PMB	Project Management & Budgeting
		PNGARS	Papua New Guinea Amateur Radio Society
KARL	Korean Amateur Radio League	PSIG	Pounds (per) Square inch (Gauge)
KARS	Kuwait Amateur Radio Society	PSK	Phase Shift Keying
KB	Kilobyte	PTTE	Poly Tetra-Fluoro-Ethylene (Teflon is one trade-name)
KHz	Kilohertz	PTT	Push to Talk
KISS	Keep It Simple, Stupid!	PVA	Poly-Vinyl Acetate (eg plastic paint)
		PVC	Poly-Vinyl Chloride
LABRE	Liga de Amadores Brasileiros de Radio Emissao	PZX	Polski Zwiasek Krokotolawcow (Poland)
LAN	Local Area Network		
LACOP	Limited Amateur Operator's Certificate of Proficiency	GARDA	Gardaun Amateur Radio Digital And Teletype Association
LARA	Ligos dos Amadores de Radio de Angola	OCWA	Quarter Century Wireless Association
LARS	Lesotho Amateur Radio Society	QTHR	Location Query in Call Book
LASER	Light Amplification by Stimulated Emission of Radiation		
LED	Liquid Crystall Display	RAAG	Radio Amateur Association of Greece
LCRA	Liga Colombiana de Radioaficionados	RACES	Right Ascension of Ascending Node
LDR	Light Emitting Diode	RACEN	Radio Amateur Civil Emergency Service
LF	Low Frequency (30 to 300 kHz)	RADAR	Radio Detection And Ranging
LFRAG	Land Forces Amateur Radio Group	RAL	Association des Radio Amateurs Libanais (Lebanon)
LHF	Left-Hand Side	RAM	Random Access Memory
		RAOTC	Radio Amateur Old Timers' Club
		RAST	Radio Amateur Society of Thailand



RAX	Rural Automatic Exchange	STD	Subscriber Trunk Dialling
RAYNET	Radio Amateur Emergency	SWL	Short Wave Listener
RC	Radio Controlled Resistance Capacitance	SWR	Standing Wave Ratio
RCA	Radio Club Argentine	SYELEDIS	Système Electronique pour Evaluation de Distance
RCB	Radio Club Boliviano	SYSP	System Operator
RCC	Radio Club de Chile	TAFE	Technical And Further Education
RCCR	Radio Club de Costa Rica	TAFR	Tucson Amateur Packet Radio
RCD	Radio Club Dominicano	TARC	Townsville Amateur Radio Club
RCH	Radio Club of Haiti (also Honduras)	TCA	Time of Closest Approach
RCP	Radio Club Paraguay (also Peruano)	TCPIP	Transfer Control Peripheral Interchange Program
RCU	Radio Club Uruguayo	TEAC	Technical Equipment Advisory Committee
RCV	Radio Club Venezolano	TEP	Trans Equatorial Propagation
RD	Radio Detector Remembrance Day	TII	Town Indicator Interference
RDSS	Radio Determination Satellite Service	TIR	Technical Institute of Radio (Syria)
RED	Reseau des Emetteurs Français	TLC	Tender Loving Care
REP	Rede dos Emissores Portugueses	TLM	Telemetry
RF	Radio Frequency	TNC	Terminal Node Controller
RFDS	Royal Flying Doctor Service	TPC	Third Party Traffic
RFI	Radio Frequency Interference	TRAC	Telstr Radio Amateurs Capiyet (Turkey)
RGB(I)	Red-Green-Blue (Intensity)	TRF	Tuned Radio Frequency
RHS	Right-Hand Side	TTARS	Trinidad & Tobago Amateur Radio Society
RI	Radio Inspector	TTL	Transistor Transistor Logic
RISC	Reduced Instruction Set Computer	TTY	Teletype
RII	Receiver Incremental Tuning	TU	Terminal Unit
RJARS	Royal Jordanian Radio Amateur Society	TV	Television
RL	Reseau Luxembourgeois (des Amateurs des Ondes Courtes)	TVI	Television Interference
RMS	Root Mean Square	TX	Transmitter
RNARS	Royal Naval Amateur Radio Society	UART	Universal Asynchronous Receiver Transmitter
ROARS	Royal Omani Amateur Radio Society	UBA	Unie van de Belgische Amateur-Zenders (Belgium)
ROM	Read Only Memory	UHF	Ultra High Frequency (300 MHz to 3 GHz)
RPM	Revolutions Per minute	ULA	Uncommitted Logic Array
RPN	Reverse Polish Notation	UJCSAT	University of Surrey Satellite
RSARS	Royal Signals Amateur Radio Society	URA	Unio de Radioaficionados Andorranos
RSB	Radio Society of Bermuda	URE	Unio de Radioaficionados Espanoles
RSF	Radio Sports Federation (of USSR)	USB	Upper Sideband
RSGB	Radio Society of Great Britain	USKA	Union Schweizerischen Kurzwellen-Amateurs
RSK	Radio Society of Kenya	UTC	Universal Temps Co-ordiné (formerly GMT)
RSL	Returned Servicemen's League	UV	Ultra-Violet
RSM	Resident System Monitor	UZRA	Union Zairoise des Radio Amateurs
RSS	Radio Society of Swaziland	VARS	Vanuatu Amateur Radio Society
RSSL	Radio Society of Sri Lanka	VBT	Variable Bandwidth Tuning
RST	Readability, Strength, Tone	VCO	Voltage Controlled Oscillator
RSTG	Radio Society of The Gambia	VCR	Video Cassette Recorder
RSTZ	Radio Society of Zambia	VDE	Verein Deutsche Elektrotechnik (German standard society)
RTTY	Radio Teletype	VDU	Visual Display Unit
RUADK	Regeneratieve Überantenne voor Digital Amateur Radio Communicatiemiddel?	VERON	Vereeniging voor Experimenteel Radio Onderzoek in Nederland
RX	Receiver	VFRO	Variable Frequency Oscillator
SA	Standards Association of Australia (now Standards Australia)	VGA	Video Graphics Adapter
SADGG	Sydney Area Digital Communications Group	VHF	Very High Frequency (30 to 300 MHz)
SAPS	Stand Alone Prediction Service	VHS	Video Home System
SARES	Soviet Amateur Radio Emergency Service	VIC	Video Interference Controller
SAREX	Shuttle Amateur Radio Experiment	VL	Very Low Frequency (3 to 30 kHz)
SARL	South African Radio League	VLSI	Very Large Scale Integration
SARTS	Singapore Amateur Radio Transmitting Society	VOA	Voice Of America
SASE	Self-Addressed Stamped Envelope	VOX	Voice Operated Changeover
SATVG	Sydney Amateur Television Group	VRS	Vereeniging van Radio Amateurs in Suriname
SBSS	Sound Broadcasting Satellite Service	VSB	Vestigial Sideband
SCR	Silicon Controlled Rectifier	VSWR	Voltage Standing Wave Ratio
SEA	South East Asia	VTAC	Victorian Technical Advisory Committee
SECAM	Sequence a Memoire (French colour TV system)	VTVM	Vacuum Tube Volt Meter
SEG	Southern Electronics Group (Albany WA)	VU	Volum Unit
SELCALL	Selective Calling (system)	VXO	Variable Crystal Oscillator
SECATVG	South-East Queensland Amateur TV Group	WADCA	Western Australian Amateur Digital Communication Association
SES	State Emergency Service	WANDARC	Western and Northern Suburbs Amateur Radio Club
SHF	Super High Frequency (3 to 30 GHz)	WARC	World Administrative Radio Conference
SID	Sudden Ionospheric Disturbance	WARG	Wagga Amateur Radio Group
SIMAD	Signal (radio to) Noise and Distortion	WARO	Western Amateur Radio Organisation (NZ)
SIRS	Seychelles (also Solomon) Islands Radio Society	WAS	Worked All States
SLARS	Sierra Leone Amateur Radio Society	WAVKCA	Worked All VK Call Areas
SMA	Small Microwave Accessory?	WAZ	Worked All Zones
SMD	Surface Mounting Device	WEFAX	Weather Facsimile
SMIRK	Six-Metre International Radio Klub	WIA	Wireless Institute of Australia
SMIS	Spectrum Management Information System	WAGSA	WIA Grid Square Award
SNA	System Network Architecture	WICEN	Wireless Institute Civil Emergency Network
SNFU	Situation Normal, All Fouled Up!	WOD	Whole Orbit Data
SPARC	Southern Peninsula Amateur Radio Club	WPM	Words Per Minute
SPDT	Single Pole Double Throw	WPX	World Prefix (Contest)
SPOT	Satellite Four Observations Terrestrial	WSARC	Western Samoa Amateur Radio Club
SPST	Single Pole Single Throw	WWSA	World-Wide South America (Contest)
SRAL	Suomen Radiomatonliitto (Finland)	XIT	Transmitter Incremental Tuning
SRJ	Saves Radio Amaters Jugoslavije	XMTR	Transmitter
SSA	(Foreningen) Sveriges Sändareamatörer (Sweden)	XYL	Ex Young Lady (ie wife)
SSB	Single Sideband	YL	Young Lady
SSR	Secondary Surveillance Radar	YLRL	Young Ladies' Radio League
SSTV	Slow Scan Television	ZARS	Zimbabwe Amateur Radio Society
STC	Standard Telephones & Cables	ZIF	Zero Insertion Force (applies to connectors)

Have you advised the DoTC of your new address?

## AWARDS

PHILL HARDSTAFF VK3JFE — FEDERAL AWARDS MANAGER  
PO Box 300 SouthCAULFIELD VIC 3162

It's been a year now since we had a general listing of all the awards available from the WIA. As this is the Annual Data Issue I have decided to list all of the WIA awards currently available. Because of the number of letters I have had requesting no QSLs, and as a number of other reputable organisations have taken this path (eg NZART), I would like to make it so that you do not need QSL cards for any WIA award except DXCC. In case you think this is some super radical change to the rules — it is not. If you read the full rules for all awards as printed in the 1986 Callbook, you will find that QSL cards were never required for VK applicants for WAVKCA. All I am trying to do here is standardise the rules, and bring them in line with what people want. Personally, I can't see the need for stipulating that QSL cards be required, as if you want to cheat on an award application, well, that's your problem, and you will always know that the piece of paper hanging on the wall is a permanent reminder of that fact (that you are a cheat), and you will never really be as proud of it as someone who earned theirs properly — will you? Also, with the price of postage these days, QSLing can be very expensive, and not everyone likes to QSL anyway. I don't think we can really have no QSLs for DXCC. Please don't get this confused with not having to send QSL cards to me for DXCC. You need to have QSL cards for DXCC, but do not need to send them to the awards manager, a certified list is OK. In the meantime, QSLs will still be required until I consult with the Federal Executive on how to go about dropping this from the rules.

### WIA Awards Program General Rules

Cost: Free to all WIA members, VK non-members pay \$A5 and others \$US5 or eight IRcs.

Verifications: Applicants need to hold QSL cards for QSOs claimed. However, do not send QSL cards with your application. A list of all contacts is needed which should list the following information: Date, time, call sign of station contacted, frequency, mode. Contacts should be listed in order of call signs. At the bottom of this list should be a declaration signed by an official of a recognised society or by two licensed amateurs reading as follows, "I/we certify that (insert name and call sign of applicant) holds QSL cards corresponding to the above list and that I/we have personally inspected these cards." Signatories to the declaration should clearly indicate their names and call signs.

Six Metres: Contacts on 50MHz during the

period that we were not allowed to operate below 52MHz will not be allowed. This goes for DX stations claiming contacts with illegal VK stations as well. I feel very strongly about this, otherwise it will undermine the whole honesty system.

### Applications

- Applicants should state whether they are WIA members and, if so, list their membership number. Where relevant, changes in call signs and dates of such changes should be indicated.
- All contacts for any particular award should be made from the same call area.
- Crossband contacts are not eligible nor are those made through terrestrial repeaters, from aircraft or to or from sea-going vessels.
- Where a fee is payable this should be sent with the application.
- In case of dispute, the decision of the Federal Awards Manager and two officers of the Federal Executive on the interpretation of these rules shall be final and binding.

### Awards Available WIA DXCC Award

This award is available to all amateurs who submit evidence of having worked 100 countries, and can be endorsed for various bands and modes. Acceptable countries are those that are acceptable for ARRL DXCC (I will print an up-to-date country list soon), with the WIA reserving the right to make different decisions in regard to additions and deletions.

Having obtained the DXCC award, holders may register subsequent claims for higher totals, and these will be published from time to time in *Amateur Radio* magazine in the form of a ladder. No stickers to indicate these higher levels on certificates are available (I'm working on this one). Applications for higher totals should be made in multiples of 25 up to a total of 200 (ie 125, 150, 175, 200) and thereafter in multiples of 10 up to a total of 300. After 300 applications will be processed in one-country steps or as required.

Should a country be deleted from the DXCC list, credit for that country will be allowed if worked before the date of deletion. The DXCC ladder will show the members' tally of current countries and total of current plus deleted countries, eg 200/220 — meaning 200 current countries and an extra 20 that have been deleted at some time, but were worked before the date of deletion.

All claimed QSOs must be made from the

same DXCC country.  
General rules apply.

### Worked All VK Call Areas

Known as WAVKCA, this colourful (now A4 sized) certificate is the WIA's most popular award. There are separate requirements for local and overseas amateurs.

VK applicants require 77 QSOs as follows:

- VK0 — three contacts from at least two different areas
- VK1 — three contacts on at least two different bands
- VK2,3,4,5,6 and 7 — 10 contacts from each call area on at least three different bands
- VK8 — three contacts on at least two different bands
- VK9 — four contacts from at least three different areas.

General rules apply except Australian applicants need not hold QSL cards.

No repeat contacts made after 14 February 1990 will count.

DX applicants (non-VK) require 22 QSOs as follows:

- VK0, 1 — one contact from each call area
  - VK2,3,4,5,6 and 7 — three contacts from each call area
  - VK8,9 — one contact from each call area.
- Contacts must be after 1 January 1946.  
General rules apply.

### Heard All VK Call Areas

This is a "heard only" version of WAVKCA award, available to SWLs on the same basis as to amateurs; the same fees and procedures apply.

General rules apply.

### Worked All VK Call Areas (VHF) Award

Requires 22 QSOs on VHF bands (50MHz and above) as follows:

- VK0, 1 — one contact each
- VK2, 3, 4, 5, 6 and 7 — three contacts from each
- VK8, 9 — one contact each

Contacts must have been made after 1 January 1968.

If the applicant moves to a new location and the new location exceeds a distance of 240km from the old, a new application will be necessary for the new QTH.

General rules apply.

### Worked All States (VHF) Award

Requires eight QSOs on VHF bands (50MHz and above) as follows:

One contact each with each state and territory of Australia as listed below:

- VK1 — Australian Capital Territory
- VK2 — New South Wales
- VK3 — Victoria

- VK4 — Queensland
  - VK5 — South Australia
  - VK6 — Western Australia
  - VK7 — Tasmania
  - VK8 — Northern Territory
- General rules apply.

## Australian VHF Century Club Award

Requires 100 QSOs on VHF bands (50MHz and above) as follows:

- 100 contacts with 100 different stations at least 70 of which must be Australian.
  - Separate awards will be issued for each different VHF/UHF band.
  - Contacts must be on or after 1 June 1948.
- If the applicant moves to a new location and the new location exceeds a distance of 240km from the old, a new application will be necessary for the new QTH.
- General rules apply.

## WIA Antarctic Award

Applicants need to make 10 confirmed contacts with amateur stations conducting valid operations from Antarctica. The 10 must include stations licensed by at least six different government authorities, and at least one must be a VKO.

Antarctica is defined as the land mass, including islands and permanent ice shelf below 60 degrees south latitude. (This excludes Heard and Macquarie Islands. These are sub-Antarctic).

Only contacts on or after 23 February 1988 are valid for this award.

General rules apply.

Note: I am still trying to piece together just how far Ken got with this one. From what I can tell, no certificates have been produced but one may have been designed. If anyone out there has any information on this award please let me know. To date there have been only three applications.

## Worked All Continents

This award is sponsored by the International Amateur Radio Union, International Secretariat (at ARRL HQ) and is available only to amateurs who are members of their IARU-affiliated national society which, in Australia, is the WIA. So, to put it bluntly, if you are not a WIA member then you cannot apply for this award (for a VK call sign). There cannot and will not be any exceptions to this. If you do care to send an application direct, it will be returned and you will be told to apply to the WIA.

The basic award is free and is available for one contact with each of the six continents, ie North America, South America, Oceania, Asia, Europe and Africa. You can apply for any of the following certificates:

- Basic certificates (mixed modes)
- CW
- Phone
- SSTV
- RTTY

- FAX
  - Satellite
  - 5-Band
- as well, the following endorsement stickers are available:

- 6-Band
- QRP (5 watts out or less)
- 1.8MHz
- 3.5MHz
- 50MHz
- 144MHz
- 430MHz

I do need to see QSL cards (not photocopies) so please include a self-addressed envelope the same size as that in which you send the cards to me, and with the same amount of postage on it, and I will turn your cards around quickly. No other fees or IRCs are necessary, but if you could include an address label out of an AR magazine to prove membership this would be helpful.

## Worked All States

You may have noticed that I referred to the Worked All States Award before as WAS VHF. This is because I intend to introduce a VHF version of this award, as I think it would be popular and fairly simple to qualify for. Some of these simple awards can be quite rewarding, especially when they represent working all the states or similar of a country. One award I have which I quite like is the ZL Worked All Districts award, which is available on all bands, not just VHF. Even though it is only for working the four districts, it is a nice one to get. The HF version will be a different design as we have a large number of the VHF awards, and at the current rate these will last a long time.

## News of some other awards

### Royal Omani Amateur Radio Society

I received a letter from Salim Al-Kitani (A41JV) giving details of an award for working a maritime mobile station using the call-

sign of A43SR/M operating on all bands from 3.5MHz to 28MHz on board the Omani yacht "FULK AL-SALAMAH". The yacht will be mobile from 13/10/1990 to 31/3/91, so you will still have a month or so to catch up with it. You need to work the above station on either two different bands or two different modes to qualify for the award. All QSL and award claims to ROARS, Box 981, Muscat, Sultanate of Oman. You should send a certified log extract and 10 IRCs or equivalent.

## Maple Leaf Award

I received rules to the above award from its custodian Gary Hammond VE3GCO:

1. Work and confirm different prefixes (NOT JUST STATIONS) from Canada. There are six classes to the award.
  - Class IV requires 10 Canadian prefixes
  - Class III requires 15 Canadian prefixes
  - Class II requires 25 Canadian prefixes
  - Class I requires 30 Canadian prefixes
2. The cost of the attractive red and white flag certificate is \$3 or seven IRCs. All contacts must be after 15 February 1965, the date which Canada received its official flag. Send log data only, or complete the lower prefix table with the call suffix.
 

The MLA 50 plaque is a wood-grain plaque with a metallic copper crest, cast maple leaves and beautifully engraved plaque. The MLA 100 plaque walnut plaque is a larger one of similar design. The MLA 50 costs \$US40 for DX applicants and the MLA 100 costs \$US60 for DX applicants, which includes air-mail costs.
3. The sponsor is the Maple Leaf Radio Society VE3GCO, C/o Gary V Hammond, 5 McLaren Avenue, Listowel, Ontario, Canada, N4W 3K1.

## Prefix Table

CF1	2	3	4	5	6	7	8	9	0	CF
CG1	2	3	4	5	6	7	8	9	0	CG
CH1	2	3	4	5	6	7	8	9	0	CH
CI1	2	3	4	5	6	7	8	9	0	CI
CJ1	2	3	4	5	6	7	8	9	0	CJ
CK1	2	3	4	5	6	7	8	9	0	CK
CY1	2	3	4	5	6	7	8	9	0	CY
CZ1	2	3	4	5	6	7	8	9	0	CZ
VA1	2	3	4	5	6	7	8	9	0	VA
VB1	2	3	4	5	6	7	8	9	0	VB
VC1	2	3	4	5	6	7	8	9	0	VC
VD1	2	3	4	5	6	7	8	9	0	VD
VE1	2	3	4	5	6	7	8	9	0	VE
VF1	2	3	4	5	6	7	8	9	0	VF
VG1	2	3	4	5	6	7	8	9	0	VG
VH1	2	3	4	5	6	7	8	9	0	VH
VX1	2	3	4	5	6	7	8	9	0	VX
VY1	2	3	4	5	6	7	8	9	0	VY
XJ1	2	3	4	5	6	7	8	9	0	XJ
XK1	2	3	4	5	6	7	8	9	0	XK
XL1	2	3	4	5	6	7	8	9	0	XL
XM1	2	3	4	5	6	7	8	9	0	XM
XN1	2	3	4	5	6	7	8	9	0	XN
XO1	2	3	4	5	6	7	8	9	0	XO
Special prefixes	Centennial prefixes	from 1967								
3B1	2	3B								
3C1	2	3	4	5	6	7	8	0	3C	

4. From 15 February to 15 April 1990 VESXN operated the special 25th anniversary call CF25A. If other double or triple numbers/ numeral calls are allowed in the future each will count separately as per the rules of CQ WPX award. Good luck.

## Grid Square Award

At this stage I just wish to say that I have not forgotten about the Grid Square Award,

and that I am just putting the finishing touches to the rules, so this is your last chance to have a say. The draft rules appeared in the October 1990 issue of AR. I wish to acknowledge letters from VK3BRZ, VK3KQW, VK3ZJC, VK2EMU, ZL3TX/VK4AEZ and a phone call from VK3EBP. Thank you for your comments and suggestions, most of which will be incorporated in the new draft rules which will definitely be in next month's issue. As I am on

holidays for a couple of weeks, I am trying to get on top of things, but I have already spent five days trying to catch up on awards etc, but still have a long way to go. I seem to be getting a lot more mail lately. This seems to be related to sending a current list of available awards with every award I send out.

That's about it for this month — happy hunting.

73 de Phill VK3JFE/FK1TS

## CONTESTS

NEIL PENFOLD VK6NE  
CONTESTS CO-ORDINATOR

### Commonwealth Contest 1991 Rules

An appeal is linked to the many very competent CW operators licensed in recent years to help bolster VK participation in the Commonwealth Contest this year.

In 1990, 30 logs were submitted, but 50-60 (as evidenced by the logs) had contest exchanges, some of the "non-entrants" having quite large contact totals which would have translated to substantial scores.

The contest is a unique combination of a domestic and a DX contest and it would be theoretically possible to score 3000 points (but hardly likely!) from VK contacts only.

### Rules

(Reprinted from RadCom)

1. General: The Commonwealth Contest is intended to promote contacts between stations in the British Commonwealth and Mandated Territories.

2. Eligible entrants: British Isles — Class A licence holders, who must be members of RSGB. Overseas — Licensed radio amateurs within the British Commonwealth or British Mandated Territories. Single-operator entries only will be accepted, and entrants may not receive any assistance whatsoever during the contest, including the use of spotting nets or other assistance in finding new bonuses. Entries will not be accepted from headquarters stations, nor from stations using GB or other special-event call signs or operating maritime or aeronautical mobile.

3. When: 1200GMT Saturday, 9 March 1991 to 1200GMT Sunday, 10 March 1991.

4. Sections: (a) multi-band  
(b) single-band

Single-band entrants should claim points for contacts made on one band only, but are requested to submit details of QSOs made on other bands, for adjudication purposes. Multi-band entries will not be eligible for single-band awards.

5. Frequencies/mode: CW only in the 3.5, 7, 14, 21 & 28MHz bands. Entrants should operate in the lower 30kHz of each band, except when contacting novice stations oper-

ating above 21030 and 28030kHz. Crossband contacts will not count for points or bonuses.

6. Contest Exchange: RST and serial number, commencing with 001.

7. Scoring: Contacts may be made for points with any station using a British Commonwealth prefix (see accompanying list) except those within the entrant's own call area. Note that for this contest the entire UK counts as ONE call area, and therefore UK stations may not work each other for points. Each completed contact scores five points, with a bonus of 20 points for each of the first three contacts with each Commonwealth Call Area, on each band.

8. Headquarters Stations: A number of Commonwealth Society HQ stations (although not eligible as entrants) are expected to be active during the contest and will send 'HQ' after their serial number to identify themselves. Every HQ station counts as an additional call area (and therefore attracts the 20-point bonus) and entrants may contact their own HQ station for points and bonuses.

9. Logs: Separate logs are required for each band. Entries should be typed or written in ink on one side only of standard (A4) size paper or pre-printed log sheets, and should contain 40 QSOs per page. Columns to be headed: Time GMT; call sign of station worked; RST and serial number sent; RST and serial number received; bonus points; points claimed. Computer-generated logs are welcomed provided they are formatted as above.

Duplicate contacts must be clearly marked and not claimed for points. Each unmarked duplicate contact found for which points have been claimed will result in the deduction of 55 points. Entries containing more than five such duplicates will be liable to disqualification.

Each entry must be accompanied by a cover sheet indicating the section entered and the scores claimed on each band (also, don't forget details of equipment, and your correspondence address!). Entrants making more than 80 QSOs are requested to include a check-list of the call signs appearing in the log, sorted into alphabetical order and with either the serial number sent or the time of contact beside the call sign.

10. Declaration: Each entry must be accompanied by the following declaration, signed and dated: "I declare that this station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the decision of the Council of the RSGB will be final in all cases of dispute."

11. Address for logs: RSGB HF Contests Committee, PO Box 73, Lichfield, Staffs, WS13 6UJ, England.

12. Closing date for logs: Logs should be posted to ARRIVE before 8 April 1991. Overseas entrants are advised to forward their logs by air mail, as late entries may be treated as checklogs.

13. Awards:

(a) Multi-band — The Senior Rose Bowl will be awarded to the overall leader, and the runner-up will be awarded the Junior Rose Bowl. The Col Thomas Rose Bowl will be awarded to the highest-placed UK station. Certificates of Merit will be awarded to the third-placed entrant overall, and to the leading station in each call area.

(b) Single-band — Certificates of Merit will be awarded to the leading overseas and UK entrants on each band.

### Receiving Contest

A Receiving Contest is run in conjunction with the above.

For rules, SASE to VK3ZC QTHR.

### Commonwealth Contest 1991 Call Areas

The following call areas are recognised for the purpose of scoring in the Commonwealth Contest 1991:

A2	Botswana
A3	Kingdom of Tonga
AP	Pakistan
C2	Nauru
C5	Gambia
C6	Bahamas
G,GB,GD,GI, GJ,GM,GU,GW	United Kingdom (all one area)
H4	Solomon Is
J3	Grenada
J6	St Lucia
J7	Dominica
J8	St Vincent
P2	Papua New Guinea
S7	Seychelles
T2	Tuvalu
T20	W Kiribati

T31	C Kiribati
T32	E Kiribati
V2	Antigua, Barbuda
V3	Belize
V8	Brunei
VE1	Maritime Provinces
VE1	Sable Is
VE1	St Paul Is
VE2	Quebec
VE3	Ontario
VE4	Manitoba
VE5	Saskatchewan
VE6	Alberta
VE7	British Columbia
VE8	North West Territories
VK1	Australian Capital Territory
VK2	New South Wales
VK3	Victoria
VK4	Queensland
VK5	South Australia
VK6	Western Australia
VK7	Tasmania
VK8	Northern Territory
VK9L	Lord Howe Is
VK9M	Mellish Reef
VK9N	Norfolk Is
VK9X	Christmas Is
VK9Y	Cocos (Keeling) Is
VK9Z	Willis Is
VK0	Heard Is
VK0	Macquarie Is
VK0	Antarctica
VO1	Newfoundland
VO2	Labrador
VP23E	Anguilla
VP2K	St Kitts, Nevis
VP2M	Montserrat
VP2V	British Virgin Is
VP5	Turks & Caicos
VP8	Falkland Is
VP8	S Georgia
VP8	S Sandwich Is
VP8	S Shelland Is
VP8	Antarctica
VP9	Bermuda
VQ9	Chagos
VR6	Pitcairn Is
VS6	Hong Kong
VY1	Yukon
VU	India
VU7	Laccadives
VU7	Andaman & Nicobar Is
YJ	Vanuatu
Z2	Zimbabwe
ZB2	Gibraltar
ZC4	Cyprus (Sovereign Bases)
ZD7	St Helena
ZD8	Ascension Is
ZD9	Tristan da Cunha, Gough Is
ZF	Cayman Is
ZK1	Cook Is
ZK1	Manihiki
ZK2	Niue
ZK3	Tokelau
ZL0	New Zealand
ZL1	New Zealand
ZL2	New Zealand

ZL3	New Zealand
ZL4	New Zealand
ZL5	Antarctica
ZL7	Chatham Is
ZL8	Kermadec Is
ZL9	Auckland & Campbell Is
3B8	Mauritius
3B9	Rodriguez Is
3D2	Fiji
3DA	Swaziland
4S	Sri Lanka
5B4	Cyprus
5H	Tanzania
5N	Nigeria
5W	Western Samoa
5X	Uganda
6Z	Kenya
6Y	Jamaica
7P	Lesotho
7Q	Malawi
8P	Barbados
8Q	Maldives
8R	Guyana
9G	Ghana
9H	Malta
9J	Zambia
9L	Sierra Leone
9M2	W Malaysia
9M6/9MB	E Malaysia
9V	Singapore
9Y	Trinidad & Tobago
GB5CC	RSGB HQ Station + various other Commonwealth HQ stations

6190, which seems to be the first ever over 6000 from a VK. Russ Coleston VK4XA, 4785, was eighth, and Dieter Kieseewetter VK2APK, 12th with 4410.

Al Slater G3FJB decided to try his hand at DXpeditioning, and as ZC4ESB was the overall winner by 165 from VE7CC. Conditions in the UK must have been good as four Gs made the top 10.

For the first time, Australia was represented by a HQ station, VK3WIA, eligible for contact and bonus points, but not for competition. The operating was shared, thanks to Tino Pavic VK3EGN and Roy Reed VK3ELB who between them netted 261 contacts.

ZL never seems able these days to produce more than five entries. The VEs improved to 21, while there was keen competition between 9J2, P29, 5Z4, C56, ZB2, Z23, V2, VO, VU and 6Y5.

A new development was an entry from VE3/W8VSKM — the call is undoubtedly a Commonwealth one!

## Scores — Top Ten

Posn	Call	Total	80	40	20	15	10
1	ZC4ESB	6755	240	755	2250	2085	1445
2	VE7CC	6590	428	1213	1862	1697	1270
3	6Y5HN	6225	428	1215	2220	1498	870
4	VK6LW	6190	325	1050	2045	1705	1065
5	G4BUU	5352	420	910	1470	1592	960
6	G3MXJ	5145	410	750	1671	1354	960
7	G3LEF	5117	365	214	1543	1385	855
8	ZL3GO	4809	579	950	1390	1310	580
9	VK4XA	4785	425	770	1730	1120	740
10	G3QZF	4500	325	690	1345	1350	790

## Commonwealth Contest 1990 Results

Not all VKs would have considered the conditions for the 1990 Commonwealth Contest as ideal, but they were a great improvement on the previous year when QRN on the lower bands really made things difficult.

Though the number of local logs submitted dropped from 36 to 30, there was a quite reasonable number of VKs available for contact on the bands, estimated to be in the mid-50s.

It is one thing to participate and, at the end of the contest, to tot up the score — by the time the results come out you will have forgotten your score — so how much better is it to send in an entry and see in print where you came in relation to those whom you contacted?

We recall, some 15 years ago, a prominent VK6, an overall winner in his day, reportedly being asked why he no longer took part in BERU, as it was then. Apparently there was no challenge left as "anyone could win it from WA".

No sour grapes, but the West does seem to be in a unique position in this contest compared with the east coast, as it gets openings especially on 15 and 10 which don't seem to appear elsewhere. Of course, you have to be pretty smart too, to grasp the opportunity!

Kevin Smith VK6LW came to the fore again to take out fourth place with a fine score of

## Australian Scores

4	VK6LW	6190	325	1050	2045	1705	1065
10	VK4XA	4785	425	770	1730	1120	740
12	VK3APK	4410	350	665	1575	965	655
23	VK2AYD	3327	350	780	1305	625	267
27	VK3ZG	2905	325	630	810	515	225
31	VK5GZ	2870	405	300	1135	760	270
31	VK5BN	2790	300	575	850	630	425
41	VK2DID	2470	300	810	810	525	25
43	VK3DQ	2400	500	525	840	435	100
47	VK8RU	2350	-	100	930	695	625
48	VK4XW	2215	380	550	905	380	100
50	VK8HQ	2183	-	-	1243	865	75
57	VK8HA	2025	-	-	1025	810	190
61	VK5AJ	1880	-	-	1880	-	-
67	VK5AGX	1875	-	-	1875	-	-
70	VK5MA	1655	-	200	875	505	75
71	VK2EL	1605	175	325	675	405	25
77	VK4TT	1480	-	-	1480	-	-
79	VK7RY	1405	300	235	645	150	75
81	VK3DNC	1365	-	-	680	335	100
86	VK4OD	1218	350	460	408	-	-
87	VK3XB	1195	-	-	1195	-	-
91	VK3JJ	1078	-	-	1078	-	-
92	VK3KS	1060	-	-	285	775	-
93	VK5AC	1030	-	125	530	245	130
94	VK5HO	975	225	175	475	75	25
102	VK3XF	880	200	275	405	-	-
102	VK3FC	820	-	825	-	-	-
103	VK5RP	820	-	75	200	225	-
103	VK3BDH	730	-	-	430	200	100

Single-band entries among the above were:

7MHz	VK3FC
14MHz	VK6AJ equal overseas leader, VK3JJ, VK4TT, VK5AGX, VK3XB
21MHz	VK3XB

Other Pacific area results:

8	ZL3GO	4809	45	P29PL	2385
16	ZM1AZ	4140	80	ZL1AZ	1420
26	ZM1HV	3021	112	ZL3BJ	550

## RSGB Comments (reproduced from RadCom Nov '90)

Well, the case is proven, CW DXers are certainly not extinct! The 53rd Commonwealth

Contest was a great success with all those who took part and, once again, entries were up on last year (130 vs 128) in spite of severe QRM from a contest organised by a Japanese radio magazine and the usual crop of last-minute equipment failures. Your adjudicator was particularly pleased with the increased numbers of typed and carefully rewritten logs — thank you.

Having failed to meet his past ambition of an outright win from the UK, Al Slater G3FVB resorted to mounting a DXpedition this year. He put in an excellent winning log from ZC4ESB, using a TH3, long-wire and TS830. Al wins the Senior Rose Bowl for his efforts, and my thanks for his assistance with contest publicity (along with VK3ZC, ZL3GQ, ZL1AAS and other willing assistants worldwide). Lee Sawkins V37CC, using no less than seven beams, including a two-element Delta on 80m, had to settle for second place and the Junior Rose Bowl — a very creditable performance nevertheless, scoring around 900 points more than last year. Third place went to Nigel Hoyow 6Y5HN who could not quite match last year's score.

In the UK, Dave Lawley G4BUO took advantage of G3FVB's absence to win the Col Thomas Rose Bowl — though in fact his score

would have exceeded Al's 1989 effort, so he was clearly in good form. Entries from Dennis Andrews G3MJJ, using a TH6 and slopers, and Peter Hobbs G3LET, using a ground plane and long wire, were closely matched for second and third UK places. Comparing the leader's stations demonstrates that operator skill and luck are of major importance — in other words, entrants without the resources to erect large aerial arrays need not be discouraged but should try even harder to maintain impetus throughout the 24 hours.

Single-band winners were: VO1NA (80m), ZL1AZE and G3DYY (40m), VK6AJ and G4BVH (20m), ZB2EO and G4BKI (15m) and VE3HX and G3PJT (10m). Certificates of merit go to each of them.

In the receiving section, "Brad" Bradbury BR51066 was the lone entrant. His log was faultless and should serve as an example to other SWLs — indeed the HF Contests Committee would be more than happy to assist other listeners to enter (please write to the HFCC at RSGB HQ for more information). Brad wins the Receiving Rose Bowl.

A fair sprinkling of exotic DX was active, though of course never enough to satisfy everybody, and it was gratifying to see participation from Africa, the Pacific, Caribbean and

India. Local conditions were generally difficult, and all credit to the operators for doing so well with often relatively modest stations. Nineteen-ninety was the first year that additional bonus points were available for working Commonwealth society HQ stations; a total of nearly 900 contacts were made with VK3WIA, ZL6A and GB5CC. We hope that further society stations will be active next year in the spirit of international friendship which is at the root of this contest, and once again we urge all Commonwealth amateurs to publicise the event on-air and in print wherever possible.

Comments received: "An enjoyable holiday" (G3FVB); "My logging program thrice lost about 10 QSOs" (ZL3G1); "A hard slog on Sunday morning" (G4BUO); "Capital fun" (VE2KN); "Best CW event of the year" (G3JJG); "Antennas damaged in ice storm three weeks before contest" (VE6OU/3); "Had 200mm of rain" (P29PL); "HF conds disappointing on Sunday morning, LF conds dismal" (GW4XXF); "Didn't intend to participate but got carried away" (VE1AYY); "Called CQ BERU to avoid JA QRM"; (GW3SB et al); "Thank goodness for liquid paper!" (VK6AJ).

**G4IFB**  
**ar**

## HOW'S DX

STEPHEN PALL VK2PS  
PO Box 93 DURAL NSW 2158

The present propagation pattern in our part of the world is a worry for the VK/ZL DXing fraternity. Whilst the North American DX bulletins are praising the "very good and excellent propagation on most bands" we in VK and probably in ZL cannot say the same.

The best way to describe our propagation is "mediocre to very poor". Some DX nets did not operate at all during December, or survived on a very restricted basis, the participants being mainly the locals. Contrary to propagation predictions band openings on 14 MHz were very much later and shorter as expected. The solar flux numbers are constantly changing, but a slow downward pattern can be detected from time to time. Experts predict that the decay of Cycle 22 will start late 1992 and by 1997-97 it will be at its lowest point, after a spectacular start in September 1986.

### Chatham Islands - ZL7

As predicted, (see Jan 91 AR) Eli HA9RE ZL0AAD/ZL7 and Miki ZL0ADN/ZL7 have appeared on the bands on December. They were heard on all bands from 28 MHz to 3.9 MHz. I had a QSO with Miki and I found out the following info about their operation. They will stay on Chatham until 13 January, then they will spend one week in ZL. Then they are off to Niue as ZK2XA and ZK2XB. Miki says

they do not have an amplifier and their signal sometimes is lost in the pile-ups. As at 28 December they made approximately 2800 QSOs. A further problem is, that Miki ZL0ADN/ZL7 broke his right hand shortly before departure from Hungary. The hand is in plaster and it is very difficult to operate CW with it. They have a mini beam and several dipole antennas, which they share and use on alternate days. QSL goes to: DJ1ND, Klaus Dittmar, Huehlweg 45, D-8580, Bayreuth, Germany, with self-addressed reply envelope and 2 IRCs or one green stamp.

### Afghanistan - YA

It was reported at the beginning of December that Romeo Stepanenko UB5JRR/3W3RR will go to Spratly Island for a second operation. However, this plan has been changed as Romeo received permission to operate from Afghanistan. This was scheduled to start before Christmas, but it was delayed on account of organizing enough funds, until early January 1991. The permission is for a three months operational period; however at this stage it is not known exactly how long he will stay. It is said that it will be only for three weeks.

Romeo will use the callsign YA0RR in Afghanistan. On the other hand, the well known

French DXer, Jackie, F2CW received a six-months job transfer to Afghanistan, and will try to obtain a licence to operate.

### Fiji - 3Ds

Eric 3D2EA, the well known DXer who for the past one year or more, was present almost daily on the ANZA net, has left Fiji with his family including a brand new daughter. Eric's contract has expired and he returned to Sydney on a temporary basis. He is expected to be heard shortly from Africa. Rumour has it, that it will be 5H3.

### The Colvins

Lloyd, W6KG and Iris W6QL were active from Walvis Bay, as ZS9/W6KG and they hope to be operational shortly from Burundi, 9U, as the next stop of their travel through Africa. There are three resident operators in Walvis Bay. The Colvins C9QL activity from Mozambique has been approved by the ARRL DXCC Section. They made 5000 QSOs as C9QL. QSL goes to YASME (See Dec 90 AR.)

### Madagascar - 5R8

Jim VK9NS reported early in December that IK2GNW Adriano will be active from this island state in the near future. The photocopy of Adriano's Madagascar licence was sighted by Jim, and the ARRL has approved the operations for the DXCC. The activity started around Christmas and ended on 4 January. Adriano 5R8GN was most cooperative with net activities, and quite a number of VKs were

able to work this rare country. QSL to Adriano's home address: Adriano Premoselli, Via Rossini 2, I-20080, Cislano, Italy.

## Saint Peter and Saint Paul Rocks - PY0S

The Brazilian Natal DX Group, with a membership of 17, in a press release dated August 1990, announced a new DXpedition to these rocky outposts of Brazilian Territory in the Atlantic Ocean. The activity will take place in May 1991. They intend to activate PY0S with five operators for 10 days. This is the same DX group which activated Trindade Island for a very short time early in 1990. Let's hope their PY0S operation will be more successful than the one from PY0T.

## San Felix - XQ0

John XQ0X is now active on this QTH. The beam antenna has been erected. This should help with contacts. John has limited knowledge of English and operates on lists with non-Spanish speaking amateurs. Mickey, CE3ESS is the list controller. John will stay on the island several months, so there is a good opportunity to work him. QSL to: (See Jan 1991 AR.)

## Guinea-Bissau - J5

The QSL manager for Alfredo J5CVF advises that Alfredo (home call CT1CVC) will return to Guinea-Bissau on 5 January 1991, and will be active until the end of March. VK/ZL DXers are advised to check into the 14222 net on weekends. In February during one weekend, Alfredo will be active from the BLJAGOS ARCHEPELAGO, IOTA- AF-20. QSL for all operations will go to: CT1DIZ, Jose Alexandre C. Barbosa, Rua Serra Baixa 66, Algueirao, P-2725 Mem Martins, or Box 115, Algueirao, Portugal.

## Interesting QSO's and QSL information

Note: callsign, name, frequency, mode, UTC, month of QSO. ADAR= QSL info in previous issues of AR.

HV3SJ - 14019 - CW - 0630 - Dec - QSL to: IODUD Giuseppe D'Aurelio, via Antonio Fogazaro 87, I-00137, Roma, Italy.

XZ2MR(?) - 21012 - CW - 0445 - Dec - in Rangoon (?) QSL to: F6FNU (?) ADAR, ZS9W6KG-LLOYD - 14005 - cw - 0600 - Dec - QSL to: YASME: PO Box 2025, Castro Valley, Calif, 94546, USA.

T77C - 14021 - CW - 0640 - Dec - QSL to: Tony Cecoli, Via Della Carrare, RSM, 47031 San Marino.

OA3AWZ - TED - 21022 - CW - 0913 - Nov - QSL via Bureau or direct.

WP4U - Carlos - 21295 - SSB - 0454 - Oct - QSL to: Carlos M. Colon, B-35, 2nd St, Jard - Caparra Bayamon, PR-00619, USA.

D68GA - Vance - 21223 - SSB - 0415 - Oct

- QSL to: N6ZV: Don EJones, PO Box 3631, Glendale, CA - 91901 USA.

CT3DZ - Jose - 14192 - SSB - 0828 - Nov - QSL to: Jose Antonio Faria, Sitio Ariero, P-9000, Funchal, Madeira, Portugal.

KL7RA - Richard - 21237 - SSB - 0600 - Oct - QSL to: Richard A Strand, PO Box 60022, Fairbanks AK 99706, USA.

9N1HMB - 21237 - SSB - 1010 - Dec - QSL to: JA6CBG: via Bureau.

VP8CEO - Martin - 14222 - SSB - 0613 - DEC - qsl to: Martin, MPA PO Box 260, Port Stanley Falkland Islands, South Atlantic.

KD7P/NH7 - Bob - 14155 - ssb - 0642 - DEC - QSL for this contact goes to: KA2XX via the Bureau.

5W1IU - Fuji - 14226 - SSB - 1139 - Dec QSL to: JA1WHG via Bureau.

OD5MM - IRMA YL - 14243 - ssb - 0652 - DEC, QSL via: HB9CYH via Bureau.

YN5JAR - Jose - 14226 - SSB - 1215 - Dec - QSL to: Jose, PO 122, Jinotepe - Nicaragua.

YS1MO - Mario - 1422 - SSB - 0557 - Dec - QSL to: Mario Augusto Ortiz Aviles, Calle Cerro Verde, 3032 Miramonte, San Salvador, Central America.

## RTTY News

Syd VK2SG before he departed on 3 weeks well earned holiday, supplied me with the following interesting RTTY snippets:

N4WFN/C6A - 14078 - 0112Z - QSL to: Jeanie Duff, Box 40842, Reno, 89504 Nev. USA>

VP2EE - 14081 - 0217Z - QSL to: KA3DBN. HPIX1Z - 14068 - 0400Z ARQ - QSL to: Panatronix S.A., Box 2016, Balboa, Panama

TY1PS - 21074 - 0012 - ARQ.

ZP6XDW - 18102 - 0206Z - ARQ.

9Q5UN - 21085 - 2002Z - QSL to: OH3GZ.

VE8RCS - 14083 - 0332Z. This is the Polar Radio Amateur Club, operating from Ellesmere Island. QSL to: Callbook address.

ZS9Z/ZS1 - 14090 - 2254Z - QSL to: OH2BH.

XU1DK - 14088 - 1120Z - QSL to: Toru, Box 80, Koujmach, Tokyo, 102-91, Japan.

3W3RR - Romeo - will be for three weeks in Afghanistan, and will operate RTTY for 10 of those days, and will QSL via Dima, UT5RP.

## From here and there and everywhere

Yang BV2FB says that more than 600 future amateurs have passed the licensing examinations in BV. At present there are 50 active amateurs there. This number will increase considerably in the near future. BV2FB's QSL Manager is: AA6BB.

I thought, I am reasonably up to date on DX activities, but I was not prepared for a "DX Chain Letter" for "Hams only". This letter arrived on 28 December together with a Christmas card, from a known overseas DX amateur.

The letter urges me to send \$1.00 to the first address shown on the list, then it tells me

to send 20 copies of the letter to 20 new "ham" addresses and as a happy ending I will receive altogether \$8000 in the fullness of time. I will let you in on a secret: I have the \$1, but due to the high postal charges, I do not have the money for the postage of 20 letters.

Ken, VK5QW was kind enough to send me copies of the newsletter from the "Southeastern DX Club" located in Atlanta, Georgia, USA. It appears that VK amateurs are popping up in the most unexpected places. At the November meeting of this Club, the guest speaker was Dr Bob Roper VK5PU astrophysicist, who is teaching at the Georgia Technical University. He is well known among his peers and the subject of his talk was: Propagation.

John PA3CXC who operated in ST, said when visiting in Atlanta in November, that the cards of his ST operation will be out by the end of 1990. Incidentally when in ST for the second time, the UN plane on which John was travelling, was shot at and he was grounded for 6 days. John has now a US callsign: KN4NL AE.

Les VK4DA advises that IZ9CW is a pirate. The alleged QSL manager, KA6V has returned his card and money with that advice.

Neil Penfold VK6NE WIA QSL Manager for VK9 and VK0 advises that operators making contact with a VK9 or VK0 station should write the home callsign of the station worked or his/her QSL Manager's callsign on the back of the card, if the cards are sent via the Bureau. DoTC records supplied for the latest VK callbook appear to have missed about 50% of those for whom the Bureau receives cards.

Neil says as an afterthought: "maybe we have a lot of pirates."

Neil supplied some QSL addresses: VK9YJ to VK3AWY (future March 1991 operation), VK9YQS/O and VK9YQS/LH goes to VK3OT.VK9LE goes also to VK3OT.VK9LI goes to VK2SG. XW4YL goes to JA3UB and VK9CD goes to ZL2CD.

Derek VK3DD says that in the first 12 months of his licence he has worked 158 countries and has 94 confirmed. Not a bad effort.

ET3PG - Bekele - Box 2540, Addis Abeba, Ethiopia, was often heard on Zedam's net (14250). Unfortunately this operation is not yet valid for the ARRL DXCC.

Speaking of the ARRL DXCC, it is known that there is a tremendous backlog in processing these applications. Some additional personnel were assigned to the task of clearing the backlog. As at 16 December, the backlog number was 4108. Processing has begun now on new applications received in Sept 1990, and endorsements received in June 1990.

Festus - 9M8FH has sent 2000 cards and the logs to N5PFR for processing. The wife of Festus, Lorita, has received her callsign: 9M8LL.

14250 kHz in VK is designated as a Fax calling frequency. This allocation is clashing with the net frequency of Zedam YJ3ZH, which has been in existence for approx 20 years. The

"Rare DX net" the other day heard some words "exchanged" between the net controller and a VK station, which maintained that he could not hear YJ3ZH, only a few local VK's. Zedan operates a linear, and he is constantly S9 in VK2.

It was a bit embarrassing to hear how an old timer from VK, who also quoted his pre 1929 callsign which started with OA, got tangled up and mixed up in the "Latin American DX Net". It must have been his first experience of a net operation. This net is very expertly handled by Nathan OAADX at 1100UTC on 14143 kHz on Saturdays and Sundays.

Toby V47KTG after a lengthy stay on St Kitts, left the Island and is going home and will be QRT for a long time (his words).

There are rumours that Kiyoko the Japanese lady, who for the past twelve months criss-crossed the Pacific several times will be active from Central Kiribati, T31 Canton Islands with the probable callsign of T31KY. I do not envy her. There are tons of QSL cards

waiting at her Japanese home address which accumulated over the year, and hopefully all will get a reply.

Ben Pinz W2GUP will be active from British Virgin Islands as VP2V, on CW only, until 6 March. He will favour the 40 to 80 metre bands. QSL to home call, direct only, to: Benjamin M Pinz, 44 Murray Hill Ter, Marlboro, NJ 07746 USA.

In honour of Canada's Winter Games, special prefixes will be used to Canadian amateurs during February. These are: VOI-2 will use VO5-6, VY9 will use VG9, and VY2 will be VG2. VG1 will correspond with VY1, and the common VE1 to VE8 calls will sign as CG1 - 8.

It has been reported that Maljy Vysotskij Island, 4J, will be active again in the Northern Spring (March/April).

## Interesting QSLs received

Note W=weeks, M=months, YRS=years, FM=from, MGR=manager OP=operator.

Direct cards received: V44KAY (7WFM OP) J5CVF (3MO FM MGR), P21EL (10W FM MGR) V63AY (6 MO FM OP) ZD9BV (2MO FM MGR) NP2CM (4W FM OP) 4U1UN (2W FM OP) D68A (4W FM OP), DK1CS/H44 (7MO FM MGR) BY4SZ (8MO FM OP), XU8DX (11W FM MGR) KG6DX (2W FM OP) VP2EXX (6MO FM MGR) ZP1RC (3MO FM OP), CX7BY (2W FM OP) VP5JM (4MO FM MGR) HC1XM (10W FM OP) AH3C (10W FM MGR) FK8FA ("W FM OP) 9V1YC (4W FM OP) WL7BYW (6W FM OP) YL2GW (4W FM OP) C21JM (1W FM OP) WPAU (5W FM OP). Received via the Bureau: no reports.

## Thank you

This column would not have been possible without the contribution of the following helpers: VK3DD, VK4OH, VK4DA, VK5QW, VK5WO, VK7MH, VK9NS, CT1DIZ, PS7KM, and the DX Bulletins "QZ-DX" and "The DX Bulletin".

Many thanks to all of you.

**GOOD DX AND 73.**

**ar**

## POUNDING BRASS

GILBERT GRIFFITH VK3CQ  
7 CHURCH ST, BRIGHT 3741

Over the past month I have been receiving answers to my 'entry level' licence proposal, and at present I have 47 completed forms, many of which came with pages of comments and ideas. I was going to list the callsigns of those who have replied, but I noticed that none of the more prominent callsigns was present. Frankly, I expected more effort on behalf of the policy makers who hold various positions as members of councils, executive committees etc in the WIA. Even if you do not have a CW interest, it is important to think about the issue and make your voice heard. So how about it? Send your form now; it will cost you only a stamp and envelope.

It has been quite a while since we have discussed teaching the code, so this month I am presenting a detailed report on Gary Bold's own computer program, as written by himself!

I have already distributed over a dozen copies of the whole suite of Gary's Morse programs and will be happy to send them to anyone who is interested. Just send me your formatted disk (either 360k or 720k) and a stamped addressed return package.

Apart from the teaching program, there are the following:

**FSEND.BAS** sends the contents of an ASCII file as audio Morse on the system beeper, **GEJMO.BAS** reads Morse from a key connected to the RS232 port,

**RNDM.BAS** sends random code groups (not for teaching),

**TRI.BAS** triambic keyer simulator, **RWD.BAS** random word generator.

## Instructions:

Morse Teaching Program "TEACH.BAS"  
For IBM PC/XT/AT and Clones  
Version 2.0; 13 November '87  
Gary E J Bold ZLIAN  
15 Kauri Rd  
Birkenhead  
Auckland 10  
Phone: 43 7240

## 1. Introduction

TEACH is written in standard MICROSOFT BASIC. I run it under DOS 3.2 with GWBASIC on a 4.77MHz Cleveland. Just load it and read the instructions. See you later.

## 1a. Later on

Hah! So you tried it and came back? You were probably disappointed, because it seems so boring. Well, learning Morse IS boring. You probably couldn't figure out what it was trying to do. I'll give you a resume:

TEACH asks you to "type the letters as I send them". It times your response. If you don't respond (if you don't know the character) it waits a decent time and tells you what it was, and sends it again. It adjusts the time it waits by averaging the time you take to respond, so you don't have to be a good typist. In fact, your response time has NOTHING to do with its evaluation of your performance. It DOES keep track of your errors. When your error rate is low enough, and no one character is giving too much trouble, it introduces a new

character. All characters are sent randomly, but the newer ones, or the ones you have been getting wrong, are sent with greater frequency.

TEACH encourages you to guess. If you guess RIGHT, it puts the letter on the screen as a little reward. If you guess WRONG, it sends the character again without echoing, and waits again, so it gives NO negative reinforcement.

At the end of the session, you get a couple of numbers to enable you to keep track of progress. The "mastery coefficient" says "how well you know each character in use". That is, if you are getting ALL characters correct EACH time they are sent, AND you have been doing this long enough to drop all the error probabilities as low as possible, this will be 100. Zero means you're getting everything wrong. The "overall figure of merit" is the same number, normalised by the number of characters in use when you stop. There are 40 characters. If you're guessing 80 per cent correctly and 20 are in use, this is 80 \* (20/40) or 40. So the first number is something to do with "how fast you catch on and retain the characters", the second is "how far down the road you have gone".

## 2. Background

TEACH is my implementation of a computerised Morse code teaching philosophy originally published by Howard Cunningham in QST, May 1977. There are three main ideas:

(a) A computer is a non-threatening, impersonal thing. People don't get upset by making mistakes if only a computer is listening, whereas they get flustered and embarrassed making fools of themselves in front of people, especially "experts". So a computer should be a good tool for teaching simple mastery skills.



(b) New code symbols should be introduced one at a time, in "postponed discrimination order". This means long, uncommon symbols should be introduced first, to form the habit of listening to the whole symbol before deciding what it was. Also, if the uncommon symbols are introduced LAST (as is usually the case) you don't get nearly as much practice listening to and decoding them! With TEACH, by the time all the symbols have been introduced, you REALLY KNOW all those "terrible uncommon letters at the end of the alphabet".

(c) The teaching process should be ADAPTIVE. That is, feedback from the trainees should be used to modify the teaching process. There is no way a taped teaching system can do this. However, a computer can keep track of all sorts of things. Here it monitors the error rate of each character, the average error rate, the maximum error rate, and the response time of the student. Using these inputs, it decides which characters need to be sent most often, and when new characters should be introduced. There are an infinite number of possible ways this can be done. Howard's algorithm was beautifully simple and logical, so I have just adapted it slightly.

(d) The characters should be learned by SOUND, not SIGHT, and indexed the RIGHT WAY AROUND. Everybody has more trouble READING than SENDING. Hence the "table lookup" that the mind has to do should be ordered with the CHARACTERS indexed by their SOUND, not the SOUND or PATTERN indexed by CHARACTER. For example, if you

learn that

"C is --," (i.e. preferably, rather than --, if) you have learned to relate a CHARACTER to a PATTERN, which has to be CONVERTED into a SOUND. So your mind conceptually has to do an ordered search of the table ("is it A? Is it B? Is it C? yes!"). If you learn the characters indexed by sound, your mind is able to do a "hash table search", (jump straight to the right character) which is much faster. ("dahdidahdit — that's C"). If you don't understand that, it doesn't matter. Just trust me; I know what I'm doing. This is true. You will learn Morse symbols using TEACH in a way that will make it easier to gain speed.

(e) At the session end, you get some diagnostic information.

(i) The number of characters in use (maximum 40).

(ii) Your "quickness coefficient": This is supposed to represent roughly how fast you catch on. It's computed at line 8050. This will be zero if your average error probability, over all characters, is 1 — that is, you haven't remembered ANY character correctly. It will be 100 if currently you are not making ANY mistakes on any character that has been introduced. (If a character has JUST been introduced, however, there may not have been time for you to reduce its error probability to the minimum allowed).

(iii) Your "figure of merit". This is the same number, normalised by the total number of characters in use. That is, when you know ALL characters PERFECTLY, it will be 100. Then you can stop.

Unlike my Commodore 64 version of TEACH, there are no machine language sub-routines. GWBASIC supplies intrinsic SOUND statements which can be used to form the symbols. The frequency (FRQ) code speed timing is set at line 20. DOL and DAL are the dot and dash relative times. The code speed is supposed to be 12wpm. Some users have suspected that this is wrong. It is correct on my Cleveland, running at 4.77MHz, and my Concord, running at 7.2MHz, but it may be BASIC version dependent. You can test the speed on your machine and reset it, or set it to ANY speed, as follows:

There is a sub-routine at line 4000 which sends a dotstream for 10 seconds and counts the number of dots. From this it works out the correct value of parameter DOL (doltlength) for 12wpm, using the fact that 10 dots/second is 24wpm. Call this sub-routine in immediate mode. It will beep for 10 seconds and tell you what the parameter DOL at line 20 should be set to. The default value is 1.82, correct for my machines. If yours says something different, set it to that. For 15wpm, set it to 12/15 times that etc. If you do this and save the program, it will be correct from now on.

The audio frequency is parameter FRQ, also set at line 20. This number is used as a parameter for the SOUND instruction (see lines 1010, 1030). It's the frequency in Hz. Change it if you don't like 800Hz.

Let me know how you get on — if you can spare time to drop me a line.

REGARDS & 73,

GARY E J BOLD

ar

## EDUCATION NOTES

BRENDA EDMONDS VK3KT  
FEDERAL EDUCATION CO-ORDINATOR  
PO BOX 445 BLACKBURN 3130

Amateur examinations are generally devised to try to determine the extent of a candidate's knowledge — ie the amount of factual material retained — and ability to manipulate this data in some way. Rarely do we set out to determine the ability to extract information from a piece of text, or find a specific fact or theory in a mass of reference material. We tend to assume that the research or referencing skills will develop of their own accord, or that students have some innate ability which will be sufficient.

Few candidates pass the amateur examinations without being exposed to a few of the traditional text and reference books, but the

emphasis at the early stages is always on trying to cram the facts and processes into the memory banks, and then being able to retrieve them as required. However, I tend to doubt that straight memorising is so important. A few years down the track most will not be prepared to trust their memories completely, and it then becomes important to be able to find the desired data easily. New material that has not been learnt must also be available for evaluation and consideration, and changes in regulations, agreements or accepted practices occur at frequent intervals. The concerned amateur must be able to keep up to date with the growth and develop-

ment in several fields.

I doubt if any reader can look at any of the pages of reference material in this issue and say "I know all this. It has not changed since I learnt it." So an issue such as this becomes doubly important, as both a ready source of information and an updating of the data.

Let us encourage the new recruits to learn how to find information as well as how to memorise it; to be aware that changes occur, and to be sufficiently flexible to accept the changes and live with them.

Many candidates will be attempting examinations within a few weeks. They should be reminded that a pass in the examination does not free them from all future needs to learn, to find out, and to understand.

My best wishes to those candidates.

73 Brenda VK3KT

Federal Education Co-ordinator, WIA

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## SPOTLIGHT ON SWLING

ROBIN L. HARWOOD VK7RH  
52 CONNAUGHT CRES WEST LAUNCESTON 7250

Well, the momentous changes in Eastern Europe finally reached one of the most closed societies in the entire world. I am referring to Albania—that small country on the Mediterranean, between Greece and Yugoslavia. Those who have been long-term listeners to Radio Tirana, will easily remember that it has carried propaganda in the Stalinist format and many found it to be one of the most boring European broadcasters.

Albania broke with the Soviet and Chinese Communist parties and went alone until it couldn't ignore the changes that swept Eastern Europe and the USSR. Late in December 1990, the domestic pressure finally built up as the citizens wanted change, after over 45 years of self-imposed isolation. Other political parties were formed as bans on political and religious association were lifted. R Tirana at least, has now begun to broadcast a

more balanced output with western music, replacing the political rhetoric that has long dominated their broadcast output. Listen for yourself on 9500 from 0630 UTC.

At the time of compiling this column, there was still a fortnight to go before the UN deadline came into effect over the Iraqi invasion of Kuwait. Yet it was apparent that things were brewing, judging by the increased amount of traffic on US military circuits on HF. Listen on 11267 or 18002kHz USB and you will hear quite a deal of traffic, presumably from or near the Gulf region. The best period is around 0300 to 0600 and again from 1000 UTC. Monitoring these channels brings back memories of high density traffic over HF circuits during the Vietnam War.

Recently, a friend brought me his Kenwood R2000 to compare it with the Icom R70 that has been the principal receiver at this loca-

tion. The R2000 has 10 memories with the facility of being able to scan between two predetermined points, eg 7.0 to 7.15MHz. It has an inbuilt clock with which you set up to record programming in your absence. It has the standard modes such as USB, LSB or AM plus FM, which is standard, not an optional extra, as is the case with Icom R70. Sensitivity appears to be down compared to the Icom and it is a poor performer on MW, adequate on SW. The mode I primarily utilise, Exalted Carrier Selective Sideband (ECSS) on the Icom is virtually non-existent on the Kenwood. Yet it does appear to be slightly more sensitive on the higher end of the band, around 25MHz and above.

Incidentally, it does pay to install a coaxial feedline as I have recently found out. I have been lent a trap dipole for 80 and 20 metres and it clearly is more resonant than my humble G5RV. This same friend has also found that a coaxial feed minimises electrical noise compared to an open-wire feeder.

Well, that is all for February. Remember that you can write to the address, or those with packet facilities can leave traffic for me at VK7RH @ VK7BE-1 Launceston. **ar**

## REPEATER LINK

WILL MCGHIE VK6UU  
WATERLOO CRESCENT LESMURDIE 6076

### Pagers

If you operate on two-metres FM, chances are you will have heard pager interference. That awful loud noise of several seconds duration that makes you dive for the volume control. Pagers operate just above the top end of the 2m band. Just above is an understatement, as little as 12.5kHz above 148MHz. Not all pagers operate on this frequency, but are found on this frequency up. The power levels that pagers are run are around 500 watts ERP. Little wonder that they have the potential to cause problems in the 2m band.

Pagers are not going to go away, and the problem they cause to our repeaters on 2m can only increase. To minimise the interference they cause, it is important to understand how this interference is caused. Overload in the repeater's receiver producing intermod signals is the major problem. Intermod, in simple terms, is the mixing of two or more signals in a non-linear device to produce a new signal on a new frequency. If this new signal is on the repeater's receive frequency, then you are stuck with it. The repeater's receiver is already up against it, as there is one very strong signal present when the repeater is in use; that being the repeater's transmitter. What all this means is that it is a tough environment. In fact, the problem is not just limited to the repeater's receiver. The intermod signal can be generated in another receiver and radiated into the repeater's re-

ceiver. This other receiver does not even have to be turned on. Furthermore, the intermod can be generated in the junction between metal objects on the tower and guy wires, and that includes the repeater's antenna.

With all these problems it is a wonder that more intermod signals are not heard on our repeater network. However, an understanding of the problems results in solutions to most of the pager overload on 2m. The choice of a receiver with high performance when subjected to strong nearby signals is the most important. All other cures for intermod are needed to prop up the receiver's overload performance. Following is a number of suggestions to reduce pager intermod.

1. Only use an RF pre-amp if it is the sole solution to poor receiver sensitivity.
2. If you do use a pre-amp, place a very lightly coupled cavity filter between the output of the pre-amp and the input to the receiver. Cavity filter insertion loss of up to 10dB results in a very narrow bandwidth such that signals 100kHz away are a further 10dB down. This method was successful in eliminating pager interference from one of our repeaters in VK6.
3. Improve the RF isolation between the receiver and transmitter, as the intermod problem may be between a pager and your transmitter.
4. Install a front-end crystal filter. Yes, that's right. You can purchase a 50-ohm input

output crystal filter custom made to your repeater's receive frequency. With a band-pass of 15kHz and all other frequencies greater than 20dB down it may solve your intermod. Such filters are not cheap (around \$150), but it is one more way of removing the pager noise. By the way, these filters are made in Australia.

5. Orientate your receive antenna away from the pager.
6. Installing a normally coupled cavity filter may help in some situations, but with the pagers being so close frequency-wise, a single cavity filter is only a few dB down and usually has no effect.

### CTCSS and Pagers

Fitting CTCSS to a repeater's receiver would not greatly reduce pager intermod. Only intermod that triggers the repeater without there being an amateur signal would be eliminated. An amateur signal running CTCSS would still suffer from pager intermod, if the pager signal is stronger. This is an important benefit in reducing pager intermod. The pager noise at the end of an over, where it is most often heard, would be gone but CTCSS is not a total solution to his growing problem.

Not all pager intermod you are hearing is at the repeater. A considerable amount can be produced in your receiver. Depending where you operate, most of the pager intermod you are hearing may be being produced in your receiver. If your local repeater is CTCSS encoded so that you can run your receiver in the CTCSS mode, then intermod problems in your receiver can be reduced.

## Positive Offset

Consideration is being given to reversing the positive offset above 147MHz to a negative offset. If this is made mandatory, it will only limited the options available to repeater co-ordinators to manage pager intermod problems. A better solution is the one that is currently being implemented: that being reversing the frequencies where a reduction in intermod results. Pager intermod occurs not only because the repeater's receiver is

close in frequency, but has the wrong combination of frequencies — some close, some further away. There would be situations where a negative offset above 147MHz suffered more pager intermod than a positive offset. Repeaters in the 146MHz to 147MHz segment also suffer from pager intermod, and they enjoy a frequency separation away from the pager band off up to 2MHz. Let us not limit our options by making the reversal of the 147MHz to 148MHz mandatory. Close frequency co-

ordination would be essential, as two repeaters operating on the same frequency but with opposite offsets would lock each other up whenever propagation permitted.

## Postscript

This article is the first to be written using a computer and word processor. Yes, the world of computers has finally arrived for me. I now know why so many amateurs are rarely heard from again after purchasing a computer. 73 ar

## AMSAT AUSTRALIA

MAURIE HOOPER VK5EA  
11 RICHLAND ROAD NEWTON SA 5074  
PACKET: VK5EA@VK5WI

### National Co-ordinator

Graham Ratcliff VK5AGR

Packet Address: VK5AGR@VK5WI

### INFORMATION NETS

AMSAT Australia

Control: VK5AGR

Amateur check in: 0945 UTC

Sunday bulletin commences: 1000 UTC

Primary frequency: 3.685MHz

Secondary frequency: 7.064MHz

(7.064MHz is the frequency presently in use)  
AMSAT SW Pacific 2200 UTC Saturday,  
14.282MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included on some WIA divisional broadcasts.

## AMSAT Australia Newsletter and Computer Software

The excellent AMSAT Australia Newsletter is published monthly by Graham VK5AGR on behalf of AMSAT Australia and now has over 310 subscribers. Should you also wish to subscribe, send a cheque for \$20 payable to AMSAT Australia addressed as follows: AMSAT Australia, GPO Box 2141, Adelaide 5001.

The Newsletter provides the latest news items on all satellite activities and is a "must" for all those seriously interested in amateur satellites. Graham also provides a software service in respect to general satellite programs made available to him from various sources. To make use of this service, send Graham a blank formatted disk and a nominal donation of \$10 per item to AMSAT Australia, together with sufficient funds to cover return postage. To obtain details of the programs available and other AMSAT Australia services, send a SASE to Graham.

## BADR Decays

HR AMSAT News Service Bulletin 356.03  
from AMSAT HQ

Silver Spring, MD 22 December 1990

To all radio amateurs BT  
Pakistani 'Amateur' Satellite Re-enters Earth's Atmosphere

A Pakistani satellite launched by the People's Republic of China earlier this year re-entered the Earth's atmosphere either late on 8 December 1990 or early on 9 December 1990. The satellite, dubbed BADR, had an output frequency of 145.825MHz, a frequency also used by UO-11 and DO-17. It was never quite understood why the Pakistani Government assigned the 145.825MHz output frequency when there was no amateur transponder on board or any published telemetry infor-

mation which might have been of use to the amateur service.

Below is a beginning and ending snapshot of selected orbital parameters of BADR

Day	(km)	(km)	Eccen- tricity	Period (min)	Mean Motion Orbits/Day
1990 203.6	934.8	0.0026	96.05	0.0023	14.99
342.4	126.8	169.8	0.0033	87.45	0.2155
					16.47

## Microsat Update

HR AMSAT News Service Bulletin 356.02  
from AMSAT HQ

Silver Spring, MD 22 December 1990

To all radio amateurs BT

Microsat Engineering Team Status Report  
as of 21/12/90

## Summary:

AO-16 — sending PHT telemetry, file system running for beta test.

## NASA 2-Line Keplerian Elements 20 Dec 90

### AO-10

1 14129U 83 58 B 90341.95721150 -.00000028 00000-0 0000000 0 6254  
2 14129 25.9787 171.4752 5963895 198.6418 123.7551 2.05881045 56284

### UO-11

1 14781U 84 21 B 90348.59001325 .00001862 00000-0 34812-3 0 8903  
2 14781 97.9280 35.0711 0013549 40.4256 319.8075 14.65971484362393

### MR

1 16609U 86 17 A 90352.55649387 .00010029 00000-0 12381-3 0 1497-  
2 16609 51.6080 121.9393 0024874 19.0372 341.1684 15.60505683276897

### RS-10/11

1 18129U 87 54 A 90351.85617242 .00000340 00000-0 36228-3 0 4635  
2 18129 82.9253 192.8256 0011303 336.3188 23.7477 13.72131792174632

### AO-13

1 19216U 88 51 B 90350.40377437 -.00000209 00000-0 99999-4 0 2267  
2 19216 56.8563 120.5684 7087146 242.6692 30.6150 2.09704934 19197

### UO-14

1 20437U 90 5 B 90348.72021130 .00000504 00000-0 21575-3 0 2827  
2 20437 98.6882 64.1817 0011775 351.2327 8.8686 14.28815910 46645

### UO-15

1 20438U 90 5 C 90344.64739052 .00000301 00000-0 13603-3 0 1775  
2 20438 98.6898 60.0706 0010697 2.6758 357.4489 14.28494977 46057

### AO-16

1 20439U 90 5 D 90350.55779471 .00000553 00000-0 23440-3 0 1817  
2 20439 98.6917 66.3270 0011496 346.3025 13.7848 14.28917213 46928

### DO-17

1 20440U 90 5 E 90350.64728474 .00000591 00000-0 24966-3 0 1811  
2 20440 98.6894 66.3379 0011497 347.4225 12.6667 14.28976305 46923

### WO-18

1 20441U 90 5 F 90350.6250160 .00000527 00000-0 22411-3 0 1819  
2 20441 98.6916 66.3578 0012177 346.9534 13.1332 14.29054441 46927

### LO-18

1 20442U 90 5 G 90349.97899473 .00000520 00000-0 22088-3 0 1821  
2 20442 98.6915 65.7509 0012420 348.5551 11.5368 14.29126182 46835

DO-17 — sending PHT telemetry, no other changes.

WO-18 — sending PHT telemetry, dark image testing.

LO-19 — sending PHT telemetry, being reloaded.

**FILE SYSTEM:** We have again loaded what we hope is the final version of the first general release of the file system. UO-14 has also been reloaded. This latest reload was caused by a bug that was added while fixing several other bugs.

Jeff Ward GO/K8KA has also made some tweaks to the final version of the general release of PG. It is currently on UO-14, and we'll start it broadcasting from AO-16 this weekend. It will be compressed with ZIP. PB, the broadcast receiver, has been available on CIS for several weeks, and is available on several other BBS systems. The first version of PG was released on CIS and via UO-14 on 19/12/90.

UO-14 has already been released for general access. We want to do one more round of beta-tester access on AO-16 before exposing it to the masses. The previous bug was found quickly because each of the beta testers sent in their PG.LOG file which was matched to the post-mortem dump taken from AO-16. The next target for AO-16 release is 24 December, provided there are no further problems.

If you get a copy of PG, do not try to use it on AO-16 until you see a specific message announcing that AO-16 is available for general use. You will need a special command in the PG.CFG file to access AO-16 and this command will not be documented until AO-16 is available for general use.

**TELEMETRY:** The diagnostic "wash" status message has been removed in this upload. The edac error counter now appears in the status message, in status [17]. This status cell was previously unused. We have done this to reduce the overhead on the downlink.

AO-16: The AO-16 BBS was restarted on 21 December 1990 at 19:14 UTC. At this writing, it has survived three passes over the US with a reasonable load. WD0E, WB9ANQ, N4HY and NK6K generated 290 activity log entries, activities like logon, logoff, directory, upload and download. We will continue testing with a limited number of beta users, if all goes well, AO-16 should be open for general use in a few days. The more discriminating users will notice that the AO-16 downlink, when broadcasting, is different than it has been in the past. This version of the BBS uses only one buffer for the broadcast output queue; the previous version used three. That meant that, even during slow operations like an upload file close, when the entire file is scanned and the header checksum is computed, there were enough buffers for the DMA to keep the transmitter busy. With only one buffer, there will be occasional gaps for as much as a few

OSCAR-13 Schedule for 1 February to 12 March 1991

Station: Adelaide

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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## SATELLITE ACTIVITY FOR SEPTEMBER/OCTOBER 1990

### 1. Launches

The following launching announcements have been received:

Int'l No	Satellite	Date	Launch Nation	Period min	Apog km	Prg km	Inc deg
1990-							
085A	PROGRESS M-5	27 Sep	USSR				
086A	METEOR 2-20	28 Sep	USSR	104.2	975	953	82.5
087A	COSMOS 2101	01 Oct	USSR	89.2	321	180	64.8
088A	USA-64	01 Oct	USA	356.9	20413	165	37.6
089A	PRC-33	05 Oct	China	89.3	295	199	56.9
090A	STS-41	06 Oct	USA	90.2	303	280	28.4
090B	ULYSSES	06 Oct	USA				
091A	SBS-6	12 Oct	ESA	795.5	36450	7675	3.1
091B	GALAXY VI	12 Oct	ESA	641.6	36419	201	6.9
092A	COSMOS 2102	16 Oct	USSR	89.7	360	192	62.8

### 2. Returns

During the period 45 objects decayed, including the following satellites:

1990-069A	COSMOS 2089	01 Oct
1990-082A	RESURS-F9	21 Sep
1990-089A	PRC-33	23 Oct
1990-090A	STS-41	10 Oct

### 3. Notes

1990-085A PROGRESS M-5

Docked with spacestation MIR on 29 September 1990 to deliver consumable and other cargo.

1990-090B ULYSSES

Was deployed from the orbiting STS-41. Its mission is to explore the heliosphere over the full range of latitudes, especially the polar regions.

1990-091A SBS-6 and -091B GALAXY VI

These telecommunications satellites were launched by European Space Agency, using the Ariane 441 launch vehicle, from Kourou French Guiana, for the United States.

BOB ARNOLD VK3ZBB

seconds. The number of broadcast buffers may be increased in the next version; this version is an experiment to see how much free memory is available in the minimum configuration. Aside from causing the developers' hearts to miss a beat, the pauses are not a problem.

DO-17: Now that the AO-16 BBS software is stabilising, attention is turning to DOVE. N4HY is to begin preparing a special loader for DOVE shortly.

WO-18: There have been no operational changes to WO-18 this week. The WEBER-SAT command station has been downloading various dark side images this week to gather information on minor CCD defects which can be subtracted from normal images. They are also attempting to see if, with sufficient post-processing, stars can be discerned.

LO-19: LUSAT was reset to the ROM and rebooted early on 22 December 1990 UTC in preparation for loading the BBS. The BBS code will be loaded from the LUSAT command station in Argentina. There is no announced date for general availability of the LO-19 BBS.

The following recommendations for TNC parameters are made for use with the AO-16 BBS.

These settings are compatible with the

multi-user 1200-baud downlink.

Activity Log: The following request is made by GO-K8KA for UO-14 and by NK6K for AO-16. Please do not download the activity log files (ALyymmdd). They are very large now, primarily for use in debugging, and several downloads per pass is inefficient. The previous day's AL file will be put in the broadcast rotation. A program to display the file will also be broadcast.

## UO-14 Update

HR AMSAT News Service Bulletin 356.01 from AMSAT HQ  
Silver Spring, MD 22 December 1990  
To all radio amateurs BT  
UoSAT-OSCAR-14 File Server Available for Access

After final testing of groundstation and spacecraft software by the beta testers, the UO-14 File Server 'PBBS' is being released for general access. Any suitably equipped stations are welcome to use the system. The UO-14 engineering team encourages users to report their early experiences of UO-14 BBS operations. They are particularly interested in hearing how you have connected 9600-baud FSK modems to various radios.

UO-14 is currently broadcasting a file containing groundstation client software for

IBM-PC compatible computers; users who are already receiving the PACSAT Broadcast Protocol transmissions can 'bootstrap' themselves simply by receiving this broadcast. The file, number 791, is a .ZIP file containing PG.EXE and associated documentation. This file will also be posted on Compuserve and will migrate to other information sources. If you are not already using the PACSAT Broadcast Protocol, make sure to get the PACSAT File Header utility programs PFHADD.EXE and PHS.EXE as well as PG.EXE. The GO/K8KA groundstation software works on both AO-16 and UO-14. As updated versions of the PACSAT Protocol Suite are released, they will be carried as files on the satellites themselves in the same way that file 791 is carried now. The AMSAT Software Exchange is making copies available of this and other PACSAT related software via AMSAT Headquarters.

You MUST have proper groundstation software before you can access the UO-14 or UO-16 file servers. The PACSAT Protocol Suite has been specified and widely published. At least two software authors (other than GO/K8KA) have used these specifications and written groundstation client software for the IBM; implementations for other popular computers should follow in the New Year. **ar**

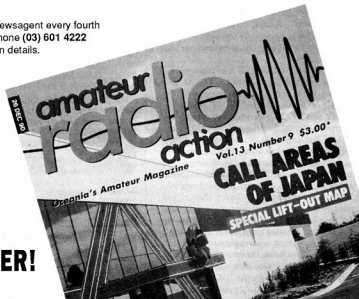
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## DIVISIONAL NOTES

### FORWARD BIAS

PHIL CLARK VK1PC

Due to pressure of other affairs, I have not been able to write this column for some time, and this will be the last during the term of the present committee.

The February meeting is the Annual General Meeting of the VK1 division and we would welcome any new members on the committee, especially some of our younger members. What about it? How about nominating for committee? This could be your chance to get some of the things that YOU want the division to provide for the hobby of amateur radio. It is certainly not an arduous task and does not take up a great deal of time.

If you are not able to serve on the committee, how about lending a hand to staff the divisional office. Volunteers are needed for a couple of hours on Monday and Wednesday evenings from 6pm to 8pm, on Fridays from 11am to 2pm and Saturdays from 9am to 12 noon. If you can help out, even if only occasionally, please contact Gavan VK1EB, QJTHR.

### Technical notes

Two members of the division, Tom VK1BUD and Dick VK1ZAH, have developed a simplex (single frequency) repeater for emergency communications use. This "store-forward" repeater has been used in exercises and proven effective and simple to place into service. A unit has already been purchased and used by the Queanbeyan headquarters of the State Emergency Services of NSW to improve its communications. The fact that the device can simply be plugged into almost any existing radio on any frequency to change it into a repeater gives it great versatility. It can be set up to record a maximum-length message from 30 seconds to about two minutes. The repeated message is identified by a tone burst at the start and finish, and is only as long as the input message, up to the maximum length. The options allow for a Morse code identification to be included if required. The current consumption is very low and the device can be readily operated from dry cells. Enquiries about this device can be made to Tom VK1BUD via the VK1 division, GPO Box 600, Canberra ACT 2601. It is available at a cost of \$250 in kit form (no box) including post and packing, or \$300 assembled in a box and tested.

Some time ago Neil VK1KNP decided to put one on board a 1200/300-baud modem based on the 7910, together with a 4800-baud modem based on the HAPN 4800-baud modem. This circuit has been built and tested and a complete set of instructions written. A run of 20 circuit boards was made in August 1990 and a second run of 20 boards was

ordered in October. This board is designed to run with a TNC and MUST be used in conjunction with one. It is NOT suitable for use with the Commodore 64 running AAPRA, Digicom or similar software. The modem board can be run from either a single 12-volt supply using an on-board negative rail generator, or it can be run from an external +/- 12-volt supply by deleting the on-board generator. The board is available from the Canberra Amateur Packet Radio Group, ACT Division, PO Box 600, Canberra ACT 2601, at a cost of \$40, which includes post and packing. The kit includes the printed circuit board, full instructions and circuit details.

### Demonstration Station

George VK1GB and his band of hardy helpers have been doing a great job of promoting the hobby of amateur radio in the "deep" north, with the demonstration station at the Hall markets on the first Sunday of each month. Volunteers are still needed to help man (person?) the station and to explain the equipment and hobby to anyone interested. George has reported considerable interest at the station and it has already attracted some new members to the division. If you can help out with this station, please contact George VK1GB QTHR or via 2m. You do not need to spend much time and you don't have to come every month, but the more we have, the less each has to do. So what about it? Will YOU come along and help promote amateur radio to the community? George would certainly be pleased to hear from all those who can help out.

73 UNTIL NEXT TIME,  
PHIL

### VK2 NOTES

TIM MILLS VK2ZTM

**AGM Time:** It seems that no sooner is one AGM held than another is upon us. The 1990/91 AGM of the NSW division will be held on Saturday afternoon, 4 May 1991 at Amateur Radio House, 109 Wigram St, Parramatta. The closing date for agenda items and council nominations will be 2pm on Wednesday, 20 March 1991 at the registered office, 109 Wigram St, Parramatta.

**WICEN (NSW) Inc:** Some of the coming events for WICEN include the Bungonia cave rescue on the weekend 9/10 March. Morton VK2DEX is the co-ordinator. The mid-year VRA conference will be at Narrabri 16/17 March, and the annual conference in Sydney in September. The Hawkesbury Cane Classic is 19/20 October. An 80m net for WICEN has been recommenced on 3620 +/- QRM Tuesday evenings. Photo IDs are being introduced

for WICEN (NSW) members. These will be based on a three-year membership period from 1 July 1991. Some interim photo IDs have been issued in some regions. WICEN membership continues to expand. Details can be obtained from your local club or write to PO Box 123, St Leonards. A questionnaire was included in the last WICEN newsletter. If you are still to return yours, please do so.

**Bookshop:** A reminder that the division maintains a large range of publications. Stocks are available of the 1991 ARRL Handbook and USA and international callbooks. Only a few of the Australian callbooks remain.

**Coming Events:** The annual Gosford Field Day will be held on Sunday, 17 February. Next exam is Tuesday evening, 19 February. Applications close 29 January. Urunga Convention will be held over Easter. The next Trash and Treasure will take place on Sunday afternoon, 24 March, a week earlier due to Easter. Would clubs and groups keep the office advised of major activities, meetings and exams so that enquiries can be answered on your behalf.

**Council Meetings:** Recently it was decided to conduct meetings twice a month, usually the second and fourth, which means that meetings will often conclude before midnight!

**Surplus Manuals:** Aub VK2AXT Divisional Librarian has been sorting out the range of equipment manuals held in the library. There is now an excess of some and they will be disposed of. Listen to the VK2WI broadcast for details.

**New Members:** A warm welcome is extended to the following who became members of the NSW division towards the end of last year.

A Ashina	VK2BEX	Killara
G A Berry	VK2XBX	Narara
A B Burrow	VK2FOW	Coffs Harbour
C D Burnett	VK2XRL	Nimbin
J P Cabouche	Assoc	Port Louis, Mauritius
D T M Connor	VK2MJX	Wyoming
N R Cunningham	VK2RD	Port Macquarie
F W Eade	VK2AEE	Kotara
R J Hughes	VK2YOW	Wollstonecraft
S G Mamo	VK2NY	Gerrigong
D Pack	VK2GIO	Mt Pritchard
M J Ramplin	VK2XMR	East Maitland
B J Ward	VK2WBJ	Caringbah

**Publicity:** Good and bad. Amateur radio received extensive publicity with the first AUSA/TV/Gladesville test last November, and no doubt with the recent test at the end of January. *Electronics Australia* for this month has a report by Tom King VK2ATJ on the first test. The ABC provided publicity for amateur radio in the Bob Hughes segment on Sunday, 23 December. Bob conducted a 10-minute interview with divisional president Roger VK2ZIG and Julie VK2XBR which was trans-

mitted to New South Wales and Tasmania. Amateur television can become very public, as more people discover the UHF channels. On New Year's Day, it appears that a member of the public was searching the UHF spectrum trying to copy a cricket broadcast from outside Sydney. He came across an ATV transmission which he just had to tell one of the newspaper groups. A report appeared in one of its columns stating that instead of cricket they found a "clear picture of a fat man about 50, sitting in a pair of underpants, looking out at them". The report went on to describe someone's shack, together with a jumbled version of his call sign. No doubt it was a hot day and the supposed underpants would have been shorts. It is important that vision transmissions do not get the public wondering what it is all about. It is going to be hard enough to retain spectrum space for wide-band transmissions without giving grounds to remove frequencies for more 'important services'!! Remember, WARC 92 is drawing

## VK3 NOTES

JIM LINTON VK3PC

### Victoria's RD Win

After a drought of 13 years the WIA Victorian Division has won the Remembrance Day Contest. Congratulations go to those individuals and club stations which entered the contest and submitted logs contributing to the win.

Behind their collective effort was a driving force encouraging greater participation in the contest. Geoff Hudson VK3VR had worked hard to ensure Victoria won in 1990. Seven years earlier his friend Greg Williams VK3VT produced a contest kit and tried to lift the level of participation. Greg ran a campaign centred around the free kits and pushed for more VK3s to get into the contest, despite the apathy which seemed to be rife.

After a poor performance in the contest over a number of years, Geoff VK3VR decided to target 1990 for a maximum encouragement effort. "Geoff worked really hard and was the driving force behind the move in 1990 for Victoria to win," Greg Williams said. Among

the new things Geoff did was to effectively use the VK3BWI broadcast to promote the RD contest.

He publicised the availability of a free contest kit — several hundred were distributed. Geoff also produced RD contest software. Working quietly behind the scenes he prepared scripts for VK3BWI, including a series of hints and words of encouragement from regular contesters. Those who had a score of 300 or more in the previous RD contest were sent a letter with a return slip asking them to give an undertaking to enter and put in a log. And, as the closing date for the contests logs approached, Geoff phoned quite a few he had heard on air to remind them to submit logs.

Geoff Hudson says with just a little bit more effort Victoria has a very good chance of winning the RD contest for the next two years. Let's give it a real go this year and try to keep the perpetual RD trophy in Victoria.

## 5/8 WAVE

JENNIFER WARRINGTON VK5ANW

I trust that you all had a safe and enjoyable holiday season and are now back at work or study with renewed enthusiasm.

Those who missed the Christmas meeting at Woodville Community Hall missed out on a good night of fun, food and friendship. Those who worked so hard to put it all together must feel a little disheartened at the lack of attendees. The speaker, Keith Rendell, had a very dry and subtle sense of humour and gave us something to think about in his talk on "Humour is no laughing matter". Our thanks to the ladies for the excellent supper; John Butler VK5NX for organising the drinks; and the council and anyone else who helped to make it happen. I wonder why more people don't attend such a good night. Is it just that there are too many things happening at that time of the year, or is council on the wrong track putting on a night like this? Perhaps you should let them know your thoughts. The ICS award was presented to Kevin May VK5IV for his services as Broadcast Officer over the

past four years; and Hon Life Membership certificates were presented to Bill Wardrop VK5AWM and myself. We were pleased to welcome visitors from VK6, Christine VK6ZLZ, Cliff VK6LZ, and son Mark Bastin. Formerly from VK5 some 10 years ago, they were back here on holiday.

## Diary Dates

Sat 2 February WIA holding examinations at BGB

Tues 26 Feb WIA general meeting 7.45pm (open from 7pm for ESC, QSL Bureau, Publications etc)

Sun 24 March Barossa Picnic, Mount Pleasant Oval, 11am. (I may have to eat my words regarding last month's info on this. My latest communiqué says "sausages and bread" will be for sale, so there may not be salads for sale!)

## VK7 NOTES

TED BEARD VK7EB

### VK7 Annual General Meeting

All members please note: the Annual General Meeting of the VK7 Division shall be held at 105 New Town Rd on 23 March 1991, commencing at 2pm.

All Notices of Motion for the AGM must be received by the Secretary not less than 28 days prior to the meeting, and must be signed by at least three (3) members.

Nomination of candidates for election to council must be received by the Secretary, in writing, not less than 21 days before the AGM.

Not less than 10 days before the AGM, should an election be necessary, a ballot paper shall be posted to each member of the Institute, and is to be returned to the Secretary prior to the commencement of the AGM.

Proxies are to be deposited at the registered office of the Institute, 105 New Town Rd, Hobart at least 24 hours before the time appointed for the meeting.

All the above items are in accordance with the Articles of Association.

E A BEARD

VK7 DIVISIONAL SECRETARY

af

## QSLs FROM THE WIA COLLECTION (28)

KEN MATCHETT VK3TL HON CURATOR WIA QSL COLLECTION  
PO BOX 1 SEVILLE VIC 3139

### The Boy Scouts Movement and Amateur Radio — Part 2

JOTA (Jamboree on the Air) is the link between the Scout Movement and Amateur Radio. Conducted in October each year, it is a means by which international understanding and goodwill can be fostered throughout the

world. It is emphasised the JOTA is not in any way a competition but simply a way of bringing Scouts together through amateur radio. The event lasts 48 hours over one weekend, and a certificate from Scout HQ is sent to all those radio amateurs taking part and who notify their participation in the event. The Jamboree on the Air 1990 made use of Australia's

domestic satellite, AUSSAT, for the relay of traffic across the nation on frequencies other than HF. The year 1990 saw the introduction of two new awards for those stations that took part in JOTA. These are the "Radio Scouting Award" and the "JOTA Award", details of which are to be found in the October 1990 edition of *Amateur Radio*.

Of the 100 or so countries taking part in JOTA each year, Australia is probably the most active. It was estimated that approximately 30,000 persons (including visitors to amateur stations) were involved in the 1989 JOTA and that no fewer than 683 amateur



GENERAL „DE PADVINDERSBOND“ (BOY SCOUTS ASSOCIATION) WEDSTRADEWEG 100 3713 XA HOLLAND		HEADQUARTERS RADIO DEPARTMENT BANDONG JAWA 68 JAWA	
U: VK3PR were by us. PKISCA		OUR XMTX:	
UR XMTX:		OUR XMTX:	
red hr on 2.2.5.4		Xmt controlled all push pull	
QSA: 2.2.5.4		3. Tubes Philips	
QRB		3. Tubes Philips	
QRC		3. Tubes Philips	
Remarks (p.t.o.):		3. Tubes Philips	
OUR RCVR:		OUR RCVR:	
Aer: length 2.2.5.4		Aer: length 2.2.5.4	
3. Tubes Philips		3. Tubes Philips	
(H.F. ampl: 4 db; L.F. ampl: 1 db)		(H.F. ampl: 4 db; L.F. ampl: 1 db)	
Per qd by ord. om. as inform or local Boy Scouts		Per qd by ord. om. as inform or local Boy Scouts	
Ass. of us, as we want QSO w/ best ham or persons		Ass. of us, as we want QSO w/ best ham or persons	
Must use ex 734 of PKISCA		Must use ex 734 of PKISCA	

stations reported their participation in the event to Scout HQ. Each year an official opening of JOTA is conducted through VK1BP, the Scout Association HQ station.

Although scouting started about 80 years ago, it has been only since 1958 that JOTA has become an established event. Like scouting, JOTA started in England when a group of scouts, who were also radio enthusiasts, set up a station at Sutton Park during the Ninth World Scout Jamboree. It was during May 1958 that Leslie Mitchell (an ex-ASM in America) organised the JOTA using his own call, G3BHK. Of course, before the first JOTA there had always been a strong link between Scouts and amateur radio enthusiasts. One trend nowadays to associate Scouts and amateur radio with the post-World War II years. However, ever since DX as we know it (which really assumed importance in the early, and especially, mid-1920s) there had been radio operators who shared the hobbies of radio and scouting. In the October issue of QST 1972 in the article entitled "Ham Radio — Scout Style" mention is made of the fact that as early as October 1912, the British experimental station XBS operated by Mr H R Phillips engaged in Scout activities on the air. Operation was on the old 200m band, range being about five miles. It was regularly on the air using, of course, spark transmission.

## PKISCA

This QSL of the WIA Collection is dated January 1932. The QSL emanating from Java (a DX country in those days) was from the Boy Scouts Association of Netherlands East Indies. This association was called "General de Padvindersbond" which, when translated, means "Pathfinders Group". The recipient was Ron Jardine (SK) VK3PR of Leongatha. At the bottom of the QSL we read, "Pee QSL by crd, om, es inform ur local Boy Scouts Ass of us, as we want QSO w/ best (best?) = broadcast hams & listeners".

## VK3WIA

Before the first JOTA, the Federal station,

VK3WIA, undertook amateur radio operation on behalf of the Scout Movement. A special QSL was printed in 1955 on the occasion of the Pan-Pacific Scout Jamboree held at Cliford Park, Victoria during December 1955/January 1956. The Federal Committee of the WIA had received a request for the Pan-Pacific Scout Jamboree Committee to provide an amateur radio at the camp so that Scouts could not only see a station working but be able to communicate with other Scouts from all over the world. The Federal Executive offered its own station, VK3WIA. The PMG (as Telecom was then known) granted the special use of higher than normal power (500 watts); the RAAF helped along with petrol-driven alternators for the purpose; whilst an Army Signals Unit erected six directional V-beams for the station. The QSL shows the four giant boomerangs which marked the entrance to the camp. (See *Amateur Radio* October 1985, "History of Jamboree on the Air" by the late Max Hull, VK3ZS (then the Federal Historian) for fuller details.

## VS6AJ

This attractive QSL was sent from Boy Scout HQ, Hong Kong. The Scout depicted on the card epitomises the spirit behind the Scout Movement. It was a firm belief of its founder that scouting was an activity to be enjoyed and that it should entail a spontaneity from children in contrast to the routine drill-based training in education practised in BP's time. Like many other members of the British Empire, Hong Kong started scouting very early, just one year after Australia's entry into the movement. The Scout shown wears his uniform which has been adapted throughout the world to fit in with national custom. The Scout emblem on his hat is taken by many to represent a Prince of Wales feather, but is really an arrowhead which shows north on a map or compass. The symbol is related to army scouting and symbolically guides the young Scout in the right direction. The arrowhead has three points which remind the Scout of the three Scout promises (duty of God and

the Queen, helping others and obeying the Scout Law). The emblem is often enclosed with a ring of rope tied at the base with a reef knot (one of the simplest and most secure of knots) which is to remind the Scout of his duty to do a good turn for somebody every day.

Scouting started in Australia in 1908. In fact, along with Belgium, Gibraltar, Ireland, Malta, New Zealand and South Africa, Australia was amongst the first countries to form a scout organisation. The year also marked the date of the first Scout camp (apart from the experimental camp held the previous year) conducted in Northumberland, England.

The WIA Collection contains a considerable number of especially allocated calls to Scout stations throughout the world. In the majority of cases a special callign suffix has been granted. The QSL cards celebrate, amongst others, Scout Jamborees on the Air, World Scout Jamborees, National Jamborees and Pan-Pacific Jamborees. Amongst those in the Collection are Papua New Guinea's P29JOA (Jamboree on the Air), SK7JAM (Swedish special prefix), ZS4JAM from South Africa, Z27JAM from Zimbabwe, LX1JAM from Luxembourg, VE3WSJ (World Scout Jamboree from Canada, 9V1SJ (Scout Jamboree, from Singapore), 3B8SJ from Mauritius, O13SUF (special prefix of the Scout Union of Finland) ZL4APJ from New Zealand's Asia-Pacific Jamboree of 1978 and ZL1PPJ (Pan-Pacific Jamboree held in Auckland in 1959) to mention just a few.

In Australia there is even a special callign suffix allocation for both Scouts and Girl Guides. The prefix block SAA-SZZ is allocated to full licensees, but the suffixes SAA-SDZ are especially assigned to the Australian Scout Association. Likewise the GAA-GGZ prefix block has been assigned to the Girl Guides Association. The special S prefix enables Scout stations to be easily recognised and encourages Scout groups to use amateur radio as part of their activity programs.

## AX2BSA

This QSL is one of several especially assigned calls to the Australian Boy Scouts



**PAN - PACIFIC SCOUT JAMBOREE**  
CLIFFORD PARK, VICTORIA, AUSTRALIA  
DECEMBER 1955 - - - - - JANUARY 1956



FEDERAL STATION, WIRELESS INSTITUTE OF AUSTRALIA



# AX2BSA

**9th AUSTRALIAN JAMBOREE**  
Leppington, N.S.W.

29th DECEMBER, 1970 — 9th JANUARY, 1971

AUSTRALIAN BOY SCOUTS ASSOCIATION  
265 GEORGE ST., SYDNEY, N.S.W., 2000.  
AUSTRALIA.

Association. The Jamboree of New Endeavour was held in Sydney in December 1970/January '71 and was the Ninth Australian Jamboree. The event was part of the bicentenary celebrations, Captain Cook having arrived at Botany Bay in 1770 in his ship "Endeavour". The call VK1BP has been mentioned previously. It is the callsign of the Scout Association's national HQ in Canberra, ACT. The special calls VK5BP and VK8BP are held by the Scout Association's HQ in South Australia and the Northern Territory respectively, whilst calls VK2SAA, VK4SAA and VK6SAA are held in other states. There are several other calls held by Scout Associations throughout Australia. The station VK6SJW operated during the World Jamboree of 1988/89 and the particularly attractive QSL VK4SAJ resulted from the 13th Australia

lian Scout Jamboree of December '82-January '83 held at Ipswich, Queensland. In Australia even the individual Scout stations have, in most cases, been fortunate in obtaining an identifying suffix in their call signs.

Examples include VK2SBB (Bunbury), VK2SCH (Heathcote, NSW), VK3SAC (Caulfield), VK3SBH (Box Hill), VK4SMM (Mount Morgan), VK5SMO (Moonta), VK6SCG (Scouts, Cubs, Guides) and VK7SCM (Cradle Mountain). All these QSLs have been donated to the WIA QSL Collection.

Space will not permit a full account of other aspects of the Scout Movement depicted on the QSL cards of amateur radio. Suffice it to say that especially allocated call signs have been claimed by related groups such as Air Scouts (eg GB0GAS = Greenwich Air Scouts), Sea Scouts (eg GB0NSS = Nelson Sea Scouts),

Bold Venture Scouts (eg GB2BVS), VK2GGL (Girl Guides) and Rover Scouts (eg VK5SRM, which operated during a Ranger Moot in January 1987).

For his services to the nation, the founder of Scouting was knighted in 1909 and raised to the peerage in 1929 taking the title "Lord Baden-Powell of Gilwell". The name Gilwell is a significant one for Scouts since it was in July 1919 that one of BP's hopes was realised, namely the establishment of a permanent training centre for Scout leaders. The site, named Gilwell Park, was in Epping Forest not far from London. In the following year, Baden-Powell was named Chief Scout of the World. After having witnessed the meteoric growth of scouting throughout the world, and the realisation of his life's work, Baden-Powell retired to Nyeri, Kenya where he died at the age of 83 on 8 January 1941. **ar**

## CLUB CORNER

### Riverland ARC Has Busy Time

A good attendance of Riverland Amateur Radio Club members for a working bee on Sunday, 2 December was held at the 2m repeater site to clean up the area and replace the transmit and receive antennas to increase the gain by about 3.5dB.

The 100R tower was negotiated by Steve Seidel, the only one game enough to make the trip and see the view.

On Friday, 7 December, club members and their wives enjoyed an excellent meal for a Christmas get together at the Wunkar Golden Grain Tavern. Wunkar is a small wheat-growing town (well known for its silos) situated between Loxton and Swan Reach in the Murray Mallee.

A mini bus was used to convey members and their wives from Renmark, Berri and Loxton to the tavern. Ivan VK5PAW was our driver.

Perfect weather enabled three members and their wives, Kingsley Brauer VK5NOV and Maureen, Doug Tamblin VK5PDT and Bev, and Peter Blades VK5APB and son Matthew to enjoy a barbecue picnic at Lake Cullulleraine with members of the Sunraysia

Radio Group. For most it was a meeting for the first time. It is hoped that further meetings of the clubs will be held in 1991. Other members of the Riverland Club were unable to attend the picnic owing to last-minute

commitments.

Lake Cullulleraine is situated approximately 38km west of Mildura on the Stuart Highway between Mildura and Renmark.

Club members send New Year's greetings to all readers of AR.

Doug Tamblin VK5PDT  
Secretary, Riverland ARC



*Members of Riverland Amateur Radio Club working bee. Back row L to R John Crosier, Ivan Smith VK5PAW, David Wilson VK5NAP, John Ruston VK5ARK, Garry Watt VK5CWP, Front Row L to R Doug Tamblin VK5PDT, Mike MacIntosh VK5KLG and Kingsley Brauer VK5NOU.*

## Air Forces Amateur Radio Net

At the annual meeting of the Air Forces Amateur Radio Net, Roy Mahoney VK4BAY was elected president; Bob Neville VK4KRN Hon Secretary; and Alan Cook VK3AUC Hon Treasurer. The net consists of serving and past members of Air Forces of the world resident in Australasia.

Net times: Southern group

Tuesdays 3610 +/- 1030Z \*

Fridays 3605 +/- 0600Z

Northern group

Tuesdays 3567 +/- 1000Z\*

\* when daylight saving is in force less one hour

The Adastral Award is available to members, non-members and shortwave listeners. Bob Neville VK4KRN, 124 Roscommon Rd, Bondall, 4034

## The West Coast Radio Group, Tas

The west coast repeater is situated on Mt Read. Mt Read is situated to the south of Rosebery, approximately 9km as the crow flies. The height is 1,050m or 3438.75ft. The

tower is 30ft and the base is about 10ft below the top of the mountain. (The tower was standing at 1950 hours on 22/2/90). This will give the repeater good coverage of the west coast and, hopefully, a large slice of Tasmania not covered by the other repeaters in the state.

The members of the west coast radio group are as follows: VK7NBU Bob, VK7KVB Dick, VK7NDH Dale, Beverly — Dale's better half, VK7PL Peter, VK7ZMR Maurice, VK7ADC Darby, VK7ZBT Greg, David Spicer and VK7BV Terry.

The repeater frequency is 147.075MHz with a + offset of 600kHz. The repeater was converted by Dick VK7KVB from a Plessey MPR43, and the final line-up was performed by Noel VK7KNS of VK Electronics in Burnie. The help given by Noel is very much appreciated by the group.

The group has also installed a UHF CB on the site; this was also converted from a commercial rig by Dick (Philips 828). This has given a few headaches due to a fault in the original set-up of the radio. This repeater will add to the coverage of the CB repeaters in Tasmania and to the safety of motorists and

bush-walkers in the state. Work will continue on the site by the members on the west coast, and I am sure Dale will continue time out with his usual short overs. He was the first, and that happened at 1646 on 19/7/90. The antenna at present is not complete, and it is hoped that at some future date, if funds are available, a set of cavities will be installed. But at present that is not possible, as the separation required from the filters is greater than the normal 85dB and will cost over \$3000, which is not available at present. But we may strike it lucky in the future. Several stations from across the water have made contact with members and other amateurs during the openings over the past few weeks. Others have triggered it but have not had a reply, as there are not many amateurs on the west coast. We are aware that this has happened due to the comments on other bands and repeaters, so don't give up; you will make contact in due time. If anyone requires more information, please contact one of the members of the group, and if it is about the conversion, Dick is the best one for that. We wish and all the compliments of the season, and may 1991 bring you all peace of mind and good health.

VK7BV TERRY McMULLEN ar

## OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS

It has taken me much longer than usual to read the December issue of Amateur Radio because my time has been taken up trying to work out the time from the VNG time signal transmissions. The absurdly complicated method of telling the time from VNG is spelt out in the article "VNG - HOW TO USE IT". All that is required is a PhD in mathematics, a computer, and a lot of spare time. However the article sensibly states "It is a good idea to have a timepiece which shows the correct time - so that you will have a fair idea of what the time should be when you are dividing the minute, day and hour sections, until you feel confident that you can get it right". In other words, to tell the time from VNG you need a good clock!

VNG should get off the air, or at least stop blocking WWW transmissions where they have the old fashioned method of simply telling you the precise time.

**DR S. BOCKNER VK5VN  
ATKINSON RD  
CRAFRERS 5152**

I was not going to renew for 1991 but after seeing the article "A Japan Odyssey" I changed my mind.

Life is getting a bit too "high tech" for me nowadays. I am trying to fathom the myster-

ies of UNIX on my 286/12 computer, but sometimes I feel like selling all the high tech gear and going fishing.

The story in today's "Australian" about "mixed up" materials engineering" was good reading. but your story on Japan was very good.

My thanks to Terry Robinson VK3DWZ.

**JON KITCHIN VK6TU  
10 PHILLIP WAY  
OSBORNE PARK 6017**

## Value of AR

In response to the request for members' opinions regarding technical articles (AR Nov '90) I humbly suggest that a major reason for Amateur Radio's existence is construction, experiment and learning. Publication of technical articles creates incentive for this as well as helping younger amateurs acquire knowledge. How can we deserve our band allocations if we become a bunch of CB type operators? I should like to see more technical articles if that were possible; and by the way congratulations to Drew Diamond for his first rate construction designs, also to those responsible for a jolly good magazine.

**MURRAY YOUNG VK4GH  
36 RAINTREE BLVD  
CALOUNDRA 4551**

## AR to be Study Guide?

With interest I have followed comments about articles in AR. Let's start at the beginning! To recruit new members to WIA it is imperative to start publishing articles for beginners, corresponding to the Novice exam syllabus, so that beginners such as myself benefit both by WIA membership and in the long run by using previous issues as a reference guide! Sometimes, listening to various hams, I hear gurgles-squawk-whistle-squeak etc, which makes me wonder what are their technical qualifications? I am a beginner, oscillating in my ignorance, showing capacity to learn, and yet resistance is there! That is to say, resistance by possible helpers to teach us properly from the start! I was fortunate, having been an Air Force radio storeman, to learn a few things relating to spare parts etc.

But those with no experience would need a long time to prepare for the exam! I won't do the exam until I am 100% ready for it! So I need adequate tuition and material to prepare me. Parrot learning is out! Practical use of theory and experiment is a must! Could we see soon in AR "Electrical Laws and Circuits", diagrams etc, all the way to readiness for NAOCIP exam?

PLEASE!

**VICTOR ABIANAC QDF581  
1/222 AGNES ST  
ROCKHAMPTON 4700**

(We agree with your description of the problem, Victor. Our problem is that someone must write the material for us to publish. Any volunteers? Ed)

## Code Speed

Reading the December Pounding Brass Gil VK3CQ would like novice code speed increased from 5wpm to 10wpm. I am strongly opposed to this. There are too many disabled people on the bands and this would upset many of them.

When I started in 1980 as a novice I made 11,000 contacts on SSB. As I only number my 28MHz logbook I now have well over 52,000 contacts on this band.

In 1953, as a member of the Radio Society of WA, I could do 16wpm CW. In 1979, when I decided to go back to radio, I found that I could not even pass 5wpm due to disablement. I finally got my 10wpm in 1982 after a lot of help from old man Hok 9M2FR. I sat eight hours a day for many months just listening to the sound which I knew so well, but could not handle. When I finally managed the sound I could not write fast enough due to disablement. I love CW, but that does not mean that I or anybody else has the right to set a standard for CW to keep people off the band.

**JOHN VOGEL VK6BA**  
6 BRAND ST  
CLOVERDALE 6105

## Morse Code

### A Reply to VK5KIR

My article published in Pounding Brass was originally published in a club magazine in reply to a New Zealand anti-CW lobby group.

Regulations prevent people, like Ian, who suffer a disability, being handed out an AOCP over the counter for obvious reasons which do not require explanation. The ITU demands certain standards and, fortunately, it is still a basic provision that a candidate must satisfy DoTC of his or her ability before a licence is issued. People with impaired sight have to satisfy this requirement. It would be unfortunate for amateur radio if a licence was issued on the production of a medical certificate no matter what our personal compassionate thoughts may be.

Ian suggests that there are many brilliant people. No doubt they are satisfied with the standard they have reached. There are others who just don't want to make the effort and want the standards changed to suit.

As a long-standing member of the WIA and an active amateur for 52 years operating all modes, I think this qualifies me to make an assessment.

In conclusion, stick with it Ian, you have only 5wpm to go.

**PETER ALEXANDER VK2PA**  
NANDARI  
ROLLANDS PLAINS  
VIA TELEGRAPH POINT 2441

## More Morse

VK3TFN, wonderful idea, re-examination of radio amateurs' Morse ability. I agree, and there will be thousands joining me. Those

who fail will help populate the unused repeaters and VHF/UHF frequencies. It is obvious that Graham, like many, does not realise that Morse is a common language and, once mastered at the communication level (10wpm or better) has no restrictions, no accent. Surprisingly enough, a CW operator does not have to be conversant in Japanese and Esquimaux or any other language to world over, hence one of the many positive arguments for its retention. I will agree that many amateurs study Morse only to obtain an AOCP. Re-examination will certainly sort the men from the boys.

To deny unqualified operators access to the HF bands is neither selfish nor discriminatory (IRR 1563). An interesting point: the lobby group against Morse code seems to come from these people who have never taken time out to learn it or use it. Are they qualified to make an assessment?

The ball is in your court as it would be with many people who want to qualify for a full call.

**PETER ALEXANDER VK2PA**  
NANDARI  
ROLLANDS PLAINS  
VIA TELEGRAPH POINT 2441

## Yet More Morse

It would take more than 200 words to explain to Mr Jackson VK3TFN why CW is still the number-one communication mode,

and still the fastest "for all seasons". At present you have to pass the test, or else you do not get a full call. This does not make you a CW operator. You only become one of the elite band after years of practice. When you do master Morse code a whole new world of communications opens up for you, instead of just giving a contact and weather report, as is the case of a big percentage of contacts. Many more people would like to learn CW, but will not put their brains to it and learn or operate the code. Black boxes and the demise of proper written examinations have made things easy enough these days, but a CW pass is still a topic on air which gives the person concerned reason to boast and feel he is on his way to becoming a fully fledged "ham".

To Mr Ritson, AR Dec VK5KIR. Congratulations on passing the test in code — as you were required to do for an amateur licence. Now use it, stop whingeing, come down on 40MX and send some dots and dashes and feel you are doing some real hamming!!!! with Peter and myself.

**G W LANYON VK2AGL**  
16 HILTON AVE  
ROSELANDS 2196  
(K CALLS CAN'T USE 40 METRES!!! Ed)

## More Morse Again!

Graham Jackson VK3TFN puts forward the same fallacious arguments as the rest of

## Morseword No 47

	1	2	3	4	5	6	7	8	9	10	
1											Across
2											1 Aching
3											2 Fastener
4											3 Begin
5											4 Seep Out
6											5 Silly
7											6 Inlet
8											7 Spouse
9											8 He goes to court
10											9 Sins
											10 Stays flat
											Down
											1 Taxes
											2 Stadium
											3 Ramble
											4 Greek letter
											5 Platform
											6 Emperor
											7 Urn
											8 N.S.W. inland town
											9 Genuine
											10 Atoms

Audrey Ryan © 1990  
Solution Page 56

the anti-CW lobby.

His inane statement that CW is not now an essential part of amateur radio is not borne out by the facts. He should monitor all amateur bands, do an honest count of amateur contacts worldwide and he will find that some 60 per cent are conducted in Morse code. The reasons for this are:

- language difficulties where speech is concerned;
- the high cost of equipment in less affluent countries has led to simple solid-state CW

- rigs;
  - the often proven fact of the superior performance of CW under poor conditions;
  - the ability to copy distress calls in Morse should be essential for all radio operators.
- His ridiculous statement concerning foreign languages and distress signals is evidence that Graham should be re-examined for his lack of knowledge of distress regulations. 'Mayday' (M'aidez), 'secutite' and 'Q' code signals are international and understood in

all languages. I have taught handicapped persons Morse and many have attained unrestricted qualifications.

Less whingeing, more effort, plus good instruction will bring qualifications which make the complete amateur radio operator.

Even astronauts and aircraft pilots must learn Morse.

**TED GABRIEL VK4YG**

**PO Box 245**

**RAVENSHOE 4872**

## SILENT KEYS

DUE TO INCREASING SPACE DEMANDS OBITUARIES MUST BE  
NO LONGER THAN 200 WORDS

We regret to announce the recent passing of:

Mr L A Lawson	VK2IX
Mr Dennis King	VK2ZM
Mr Joe Baker	VK2BJX
Mr Ron Higginbotham	VK3RN
Mr J P Wain	VK3BJO
Mr Ian Morris	VK3ELS
Mr T K Long	VK3ZFL
Mr Andy Thompson	VK4AT
Mr Les Eliason	VK4EH (ex 3ALE)
Mr R F Crowell	VK6LY
Mr J M Denny	VK6YD
Mr M J (Barney) Watson	VK7BA

### A J C Thompson (Andy)

#### VK4AT

I sadly report the passing of Andy VK4AT on 24 November 1990 at the Logan Nursing Home, Brisbane. Andy was 93 years old and died peacefully in his sleep. Until his retirement Andy was a dairy farmer in the Pomona district, and later at Gympie. He was a great

experimenter in the antenna field and, on his retirement, lived with his daughter, Nancy, at Loganlea, Logan City. Andy served in the army in World War One. Sadly missed by all his mates and family.

**F T LUBACH VK4RF**

### Dennis King VK2ZM

Dennis passed away on 14 December 1990 in Orange Hospital after a short illness. He was 73 years old.

Dennis made it to the top in three careers — music, newspapers and theatre. First and foremost he was a musician, a banjo and guitar player second to none, playing at the Sydney Trocadero, on the Colgate Coast-to-Coast Radio Show and with the ABC Show Band.

At mid-life he entered the newspaper business, managing the Blacktown Advocate, and then theatres, becoming the Sydney Area Manager for Greater Union.

He held an interest in radio for many years, joining the WIA in 1975. His earlier call signs were VK2NNJ and VK2A0O.

Dennis retired to Gunderman on the Hawkesbury, then shifted to Blayney, Orange and Blackheath, and then finally was attracted back to Orange to end his days.

He leaves behind Lola, his wife of 41 years, and will be sadly missed by all who knew him on the air. But to many Dennis will be remembered as "Master of the Guitar, King of the Trocadero".

**WESTLAKES AMATEUR RADIO CLUB**

### L B (Jock) Fisher VK1LF

"Jock" died from cancer on 16 September 1990, aged 74 years.

He came to Australia from Scotland in 1945 and served in various government departments, specialising in naval electrical engineering. He retired from the Navy Department in 1977.

Jock was an active radio amateur, holding licences in UK and Australia. In addition to his amateur activities he restored old radio sets. He was a director of the Canberra Burns Club, a member of the Lions Club and of the Committee of the Goodwin Retirement Village, where he lived.

For many years, Jock played a significant part in the JOTA days at Government House, Canberra.

**73 OM, FRANK DOHERTY VK1XE**

## Roar Hopes To Expand

ONE OF FIRST WORLDWIDE fellowships of Rotary International is ROAR - Rotarians of Amateur Radio. An article by David Portley VK4DP in "Rotary Down Under" magazine says efforts are being made to expand ROAR in the South

Pacific - Australia and New Zealand in particular.

Members of many Rotary clubs are already involved in the Australian section of ROAR. These include those at Port Pirie and Murray Bridge (SA), Keilor, Ringwood, Balwyn and Bendigo (Vic),

Wanneroo (WA), Rockhampton South (QLD), Launceston North (Tas), and in NSW - Newcastle, Wagga Wagga, and Albury.

ROAR "Down Under" runs a net on 14.293 MHz at 1000 UTC on the first Sunday of every month and invites fellow rotarians to join in.

**Support the advertisers who support Amateur Radio**

# HF PREDICTIONS

ROGER HARRISON VK2ZTB  
THE APOGEE GROUP

## February Charts

For ease of use and to accommodate space restrictions in the magazine, I have provided predictions applicable for three major regions of Australia:

**VK EAST.** Covers the major part of NSW and Queensland.

**VK SOUTH.** Covers southern-NSW, VK3, VK5 and VK7.

**VK WEST.** Covers the south-west of West Australia.

For each of these regions I have selected six "terminals" to major continental regions of the world. To Europe, long path predictions are given in lieu of the short path, as the former is open at more reasonable hours.

### The charts explained

These charts are different to those you see published elsewhere, and arguably more useful to the amateur fraternity as they give, effectively, the predicted signal/noise ratio for each hour and for selected bands.

The charts are organised in 24 rows, one for

each hour UTC (first column on the left). Don't forget to add the appropriate number of hours for your time zone, including daylight saving where it applies. The next column gives the MUF (maximum usable frequency) for each hour, followed by the field strength at the MUF, in decibels referred to 1  $\mu$ V/metre (dBu). The column marked FOT gives the "optimum" frequency - the most reliable frequency for the path.

Then come five columns, one for each of five selected HF bands.

The numbers in the column represent predicted field strength at each hour in decibels referred to 1  $\mu$ V/metre. Here it represents "raw" signal to noise ratio as urban noise levels are typically 1-2  $\mu$ V/metre, but does not take into account the advantage offered by particular transmission modes. The results are based on a transmitter power of 100 W output (except where noted later), the use of modest 3-element beams or similar, and for "median" conditions. Where the re-

sults fall below -40 dB, no output is printed.

Enhanced conditions may improve S/N ratios by 9-15 dB. The use of CW or digital transmission modes show better results than SSB. If you've got 400 W output, you get a 6 dB improvement. Where conditions warrant it, I have included predictions for the bands below 14 MHz, deleting the upper bands.

## Ten Metres

The predictions look a little pessimistic for ten metres, but it only takes a slight "lift" in conditions to provide openings on this band. Keep a watch on the short-term geomagnetic and propagation forecasts, which are broadcast by WWV and Radio Australia, or obtainable from the IPS recorded message service on (02) 414-8330.

## Broadcasts

The VK2WI and VK3WI Sunday broadcasts carry propagation predictions; for the bands 14 MHz and above listen on the last Sunday of the month for the month ahead, and for the bands 1.8 to 10 MHz, listen on the first Sunday of the month for that month. Often, special predictions covering current or upcoming DX predictions will be included, so keep a listen out.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1 14.9	-16	11.3	-18	-11	-12	-19	-28	-33
2 12.8	-29	9.8	-22	-15	-16	-23	-34	-34
3 12.4	-36	9.5	-25	-16	-17	-23	-32	-32
4 12.4	-36	12.2	-34	-19	-15	-22	-32	-32
5 21.9	-14	16.9	...	-23	-15	-11	-12	-12
6 28.3	-7	21.7	...	-28	-16	-9	-7	-7
7 31.3	-4	24.3	...	-29	-16	-8	-4	-4
8 30.2	-1	24.4	...	-26	-16	-7	-7	-7
9 26.9	-2	23.4	...	-20	-10	-4	-2	-2
10 27.4	-1	22.1	-13	-12	-5	-1	-1	-1
11 21.9	2	20.8	-19	-4	1	2	0	0
12 24.5	5	19.6	-5	6	4	1	0	0
13 23.9	8	19.0	7	11	10	7	2	2
14 25.2	11	18.4	16	16	13	8	2	2
15 22.4	13	17.6	22	19	15	8	1	1
16 21.2	14	16.5	23	19	14	6	-2	-2
17 20.1	15	15.6	24	18	12	-4	-6	-6
18 18.8	15	14.5	23	17	10	0	-11	-11
19 17.8	16	13.6	22	15	7	-3	-15	-15
20 18.2	16	13.8	23	16	9	-2	-14	-14
21 20.8	12	15.6	20	16	11	3	-7	-7
22 19.7	8	14.5	19	9	5	-12	-12	-12
23 17.9	2	13.5	0	2	-1	-8	-18	-18
24 16.8	-5	12.6	-10	-5	-7	-13	-22	-22

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1 16.1	-9	12.2	-13	-7	-9	-16	-24	-24
2 13.6	-22	10.4	-20	-14	-16	-23	-34	-34
3 12.9	-31	9.9	-24	-16	-17	-23	-33	-33
4 14.5	-22	18.8	-33	-18	-14	-16	-21	-21
5 23.2	-11	17.9	...	-23	-16	-10	-11	-11
6 28.7	-6	23.0	...	-29	-16	-9	-6	-6
7 28.6	-7	23.1	...	-30	-17	-9	-7	-7
8 28.7	-7	22.9	...	-29	-16	-9	-7	-7
9 27.3	-6	22.2	...	-25	-14	-8	-6	-6
10 26.5	-5	21.0	...	-19	-10	-6	-5	-5
11 24.3	-4	19.6	-20	-12	-6	-4	-4	-4
12 22.5	-2	18.0	-17	-5	-2	-3	-3	-3
13 20.6	2	16.5	-3	2	-3	-3	-12	-12
14 19.4	7	15.4	9	8	4	-3	-12	-12
15 18.3	11	14.5	18	12	5	-5	-17	-17
16 17.4	13	13.7	18	11	3	-8	-21	-21
17 16.8	12	13.1	19	10	2	-11	-25	-25
18 16.0	14	12.3	18	9	-1	-15	-30	-30
19 15.4	14	11.7	17	7	-4	-18	-35	-35
20 15.0	14	11.3	16	5	-5	-21	-38	-38
21 14.0	13	11.9	16	8	-2	-15	-30	-30
22 18.3	10	13.5	14	10	4	-6	-17	-17
23 20.2	6	15.1	8	8	5	-2	-11	-11
24 18.4	0	13.8	-8	0	-3	-9	-18	-18

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1 16.6	0	12.6	-1	-2	-7	-16	-28	-28
2 13.9	-13	10.7	-12	-11	-16	-26	-39	-39
3 13.2	-23	10.2	-19	-15	-18	-27	-40	-40
4 12.7	-37	11.1	-26	-15	-13	-16	-23	-23
5 23.9	-8	18.4	-38	-17	-10	-9	-10	-10
6 30.8	-4	23.6	...	-22	-12	-6	-4	-4
7 31.6	-3	24.9	...	-25	-13	-6	-3	-3
8 30.2	-1	24.5	...	-25	-13	-6	-3	-3
9 30.7	-3	24.7	...	-23	-12	-5	-3	-3
10 29.6	-3	24.1	...	-19	-10	-4	-2	-2
11 28.1	-1	21.4	-18	-11	-5	-2	-1	-1
12 26.7	1	21.5	-19	-4	-2	0	0	0
13 25.1	4	20.2	-3	5	6	4	0	0
14 23.6	8	18.8	11	12	11	6	0	0
15 22.8	11	18.1	21	18	14	7	0	0
16 22.1	12	17.5	23	19	14	6	-2	-2
17 21.3	13	17.3	24	19	13	5	-4	-4
18 20.3	13	15.8	24	18	11	2	-12	-12
19 19.3	14	15.0	23	16	9	-1	-16	-16
20 18.2	14	14.0	22	14	6	-5	-17	-17
21 17.4	14	13.2	20	12	4	-6	-22	-22
22 16.8	11	14.4	14	11	4	-6	-18	-18
23 20.6	11	15.7	21	16	10	1	-9	-9
24 19.0	6	14.3	10	7	2	-6	-17	-17

## VK EAST - MEDITERRANEAN

## VK STH - MEDITERRANEAN

## VK WEST - MEDITERRANEAN

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1 12.8	-26	9.7	-20	-14	-16	-22	-32	-32
2 12.8	-22	9.7	-17	-13	-16	-22	-33	-33
3 12.7	-17	9.8	-13	-12	-16	-23	-38	-38
4 12.0	-14	9.3	-10	-12	-19	-31	...	...
5 11.1	-12	8.6	-8	-14	-23	-28	...	...
6 11.3	-4	8.9	-4	-13	-20	-28	...	...
7 13.4	5	10.7	4	-4	-13	-28	...	...
8 17.6	8	14.0	12	7	3	-9	-21	-21
9 19.2	8	15.4	9	10	7	-2	-5	-5
10 19.3	7	14.6	-6	0	0	-3	-9	-9
11 19.6	-7	15.6	-20	-9	-6	-8	-12	-12
12 15.8	-14	14.7	-31	-15	-11	-11	-15	-15
13 17.6	-21	14.2	-38	-20	-14	-13	-16	-16
14 16.9	-26	13.2	...	-22	-16	-14	-17	-17
15 16.1	-31	12.4	...	-23	-17	-15	-18	-18
16 15.3	-36	11.7	...	-23	-17	-15	-18	-18
17 15.0	-37	11.3	...	-23	-17	-16	-18	-18
18 15.9	-34	11.8	...	-24	-17	-15	-17	-17
19 16.2	-25	14.4	...	-26	-18	-14	-15	-15
20 17.4	-17	16.6	...	-23	-17	-15	-18	-18
21 16.5	-21	14.3	...	-22	-16	-14	-16	-16
22 16.0	-25	12.3	-34	-18	-15	-15	-20	-20
23 14.3	-27	10.9	-38	-16	-15	-18	-24	-24
24 13.7	-38	10.1	-51	-15	-15	-20	-29	-29

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2 12.5	-23	9.6	-17	-14	-18	-28	-38	-38
3 12.4	-18	9.6	-13	-13	-18	-29	...	...
4 11.6	-15	9.1	-11	-14	-22	-35	...	...
5 10.8	-12	8.4	-9	-17	-28	...	...	...
6 10.9	-6	8.6	-6	-16	-20	-28	...	...
7 12.7	4	10.1	2	-8	-19	-36	...	...
8 16.2	7	12.9	10	3	-4	-16	-30	-30
9 18.4	7	14.4	12	5	6	-3	-11	-11
10 19.6	5	13.7	5	6	3	-3	-11	-11
11 17.4	-1	12.7	-5	-1	-3	-8	-16	-16
12 17.1	-9	11.8	-14	-8	-8	-12	-20	-20
13 16.1	-16	11.4	-24	-14	-12	-15	-21	-21
14 15.5	-26	10.7	-32	-18	-14	-16	-21	-21
15 14.6	-32	10.2	-39	-19	-15	-16	-21	-21
16 14.1	-37	9.5	-37	-20	-16	-16	-21	-21
17 12.9	-38	8.8	-45	-20	-22	-25	-25	-25
18 14.8	-37	10.5	...	-22	-17	-16	-19	-19
19 16.8	-30	11.6	...	-24	-17	-15	-17	-17
20 19.9	-21	14.2	...	-27	-18	-14	-19	-19
21 17.5	-25	13.7	...	-23	-16	-15	-17	-17
22 15.2	-29	11.8	-35	-19	-15	-16	-21	-21
23 13.8	-31	10.6	-39	-17	-15	-18	-25	-25
24 12.8	-33	9.8	-45	-15	-16	-21	-30	-30

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1 12.3	-39	9.4	-27	-18	-18	-23	-31	-31
2 12.3	-35	9.5	-25	-18	-19	-26	-36	-36
3 12.1	-31	9.4	-22	-17	-20	-27	-38	-38
4 11.5	-30	8.9	-19	-17	-22	-31	...	...
5 10.6	-29	8.1	-17	-18	-25	-38	...	...
6 11.3	-24	8.4	-14	-18	-27	-40	...	...
7 12.4	-12	9.8	-10	-14	-21	-34	...	...
8 15.6	-4	12.4	-4	-11	-20	-32	...	...
9 19.5	0	15.4	1	-2	-7	-1	-7	-7
10 22.3	3	17.3	3	6	4	0	0	0
11 18.4	-1	14.2	-4	-1	-3	-8	-15	-15
12 17.1	-8	13.1	-14	-7	-8	-12	-19	-19
13 16.2	-17	14.5	-25	-14	-11	-18	-24	-24
14 17.1	-22	13.5	-34	-19	-15	-16	-20	-20
15 16.2	-29	13.0	-39	-22	-17	-17	-21	-21
16 15.1	-34	12.1	-44	-24	-18	-18	-22	-22
17 14.7	-39	11.3	...	-24	-19	-18	-22	-22
18 14.2	-41	10.8	...	-27	-22	-21	-25	-25
19 13.9	-41	10.4	...	-29	-24	-24	-28	-28
20 13.9	-41	10.4	...	-29	-24	-24	-28	-28
21 16.8	-31	13.2	...	-26	-20	-18	-20	-20
22 14.9	-36	11.6	-40	-23	-18	-18	-22	-22</

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1 17.1	-8	11.9	-8	-12	-7	-8	-23	-22
2 19.3	-7	14.2	-8	-6	-6	-6	-13	-
3 19.1	-11	14.5	-20	-12	-9	-9	-13	-
4 19.7	-9	16.3	-26	-16	-11	-11	-13	-
5 26.5	-6	18.6	...	-19	-11	-7	-7	-
6 27.2	-6	19.0	...	-21	-12	-7	-7	-
7 27.2	-6	19.1	...	-21	-12	-7	-7	-
8 27.2	-6	19.1	...	-21	-12	-7	-7	-
9 26.0	-5	19.0	-36	-15	-8	-5	-6	-
10 24.3	-4	19.0	-28	-11	-6	-4	-6	-
11 19.5	-4	18.0	-20	-7	-7	-7	-13	-
12 20.7	-2	16.5	-12	-3	-2	-5	-11	-
13 19.5	0	15.4	-5	0	-1	-6	-13	-
14 19.4	4	14.5	2	2	2	2	-13	-
15 17.5	8	13.8	1	7	2	4	-9	-
16 16.8	11	13.1	15	9	1	-10	-23	-
17 16.0	13	12.2	16	6	2	-16	-23	-
18 14.4	14	11.7	16	7	-2	-16	-23	-
19 15.0	15	11.2	17	7	-4	-18	-34	-
20 15.7	14	10.8	18	8	-2	-15	-31	-
21 14.9	10	10.2	13	8	-6	-20	-39	-
22 14.4	3	9.9	3	-2	-10	-22	-37	-
23 14.1	-1	9.8	3	-5	-12	-23	-37	-
24 15.0	-1	10.5	-8	-6	-10	-13	-20	-

## VK EAST - AFRICA

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1 28.6	3	23.5	-17	-2	3	4	3	3
2 28.3	3	23.2	-2	2	3	4	3	3
3 29.8	3	24.7	-3	2	5	4	4	4
4 29.6	3	24.4	-19	-3	3	5	4	4
5 29.3	3	24.0	-16	-1	4	5	4	4
6 28.6	4	23.4	-4	2	6	4	4	4
7 27.6	5	22.5	-5	5	8	7	4	4
8 26.5	7	22.0	6	12	12	9	4	4
9 25.4	10	20.5	15	14	13	10	4	4
10 24.3	13	19.5	23	20	16	10	2	2
11 23.3	12	18.6	24	20	16	8	-1	-1
12 22.9	12	18.2	26	11	6	-7	-6	-6
13 22.4	13	17.8	28	12	16	7	-3	-3
14 21.6	13	17.6	27	21	14	4	-6	-6
15 20.2	13	15.8	26	18	10	-23	-	-
16 19.1	13	14.8	24	16	5	-19	-	-
17 17.7	13	13.7	22	12	-2	-12	-27	-
18 16.5	13	12.7	19	8	-4	-19	-37	-
19 16.5	13	12.1	19	8	-5	-19	-37	-
20 15.3	11	11.9	14	1	-12	-31	-	-
21 18.5	6	14.0	12	7	0	-11	-25	-
22 17.7	5	15.9	9	7	6	3	-7	-7
23 27.6	4	21.9	-7	4	7	6	3	3
24 27.9	3	22.5	-13	0	4	5	3	3

## VK EAST - ASIA

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1 24.8	13	18.6	7	14	15	12	8	8
2 24.9	13	20.6	8	14	15	13	8	8
3 24.6	13	20.2	9	15	15	13	8	8
4 24.3	14	19.9	9	15	15	13	8	8
5 23.8	15	19.4	15	19	17	13	7	7
6 22.9	17	18.6	21	21	19	14	5	5
7 21.8	20	18.1	29	26	21	14	5	5
8 20.6	22	16.7	31	28	22	12	3	3
9 19.4	22	15.6	31	25	18	8	-3	-3
10 18.2	23	14.6	30	23	15	5	-8	-8
11 17.4	23	14.0	29	21	12	2	-13	-13
12 17.0	24	13.5	29	21	12	0	-13	-13
13 16.3	24	13.2	28	19	9	-4	-17	-17
14 15.4	24	12.1	27	17	6	-8	-22	-22
15 14.6	24	11.4	25	14	3	-12	-28	-28
16 13.8	25	10.6	23	11	-1	-17	-35	-35
17 13.1	25	10.2	22	8	-8	-22	-39	-39
18 12.4	25	10.2	21	9	-3	-19	-37	-37
19 15.4	17	11.8	18	12	3	-9	-23	-23
20 18.8	14	14.1	15	10	10	2	-7	-7
21 17.7	11	11.8	12	3	-12	-31	-	-
22 23.3	13	19.1	15	10	15	11	5	5
23 23.8	13	19.1	8	14	14	11	5	5
24 24.5	13	19.7	7	14	14	12	7	7

## VK EAST - STH PACIFIC

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1 26.1	-6	19.7	-40	-17	-10	-6	-7	-7
2 23.8	-6	18.0	-29	-12	-7	-6	-8	-8
3 21.5	-6	15.2	-23	-10	-6	-6	-13	-13
4 19.5	-3	14.7	-9	-3	-4	-8	-14	-14
5 18.2	1	13.8	-1	1	-3	-10	-20	-20
6 17.1	1	12.6	7	7	-3	-16	-21	-21
7 15.3	10	10.4	14	6	-3	-16	-21	-21
8 15.6	11	11.7	14	5	-5	-20	-24	-24
9 15.0	12	11.3	14	3	-8	-21	-	-
10 14.4	11	10.4	12	-2	-15	-21	-14	-14
11 12.1	14	9.3	7	-9	-25	-	-	-
12 12.0	14	9.3	7	-10	-26	-	-	-
13 11.9	13	11.1	6	-8	-24	-	-	-
14 19.5	12	15.0	21	15	9	-1	-11	-11
15 17.4	7	13.5	9	6	1	-8	-19	-19
16 16.5	7	14.2	7	5	-5	-11	-25	-25
17 17.3	-6	13.2	-13	-6	-6	-11	-19	-19
18 17.5	-13	13.3	-24	-12	-10	-12	-18	-18
19 20.0	-12	15.7	-24	-16	-10	-10	-13	-13
20 21.5	-9	18.7	-22	-13	-8	-8	-13	-13
21 28.2	-6	21.9	...	-26	-14	-8	-6	-6
22 28.6	-5	22.3	...	-27	-15	-8	-6	-6
23 28.8	-8	22.9	...	-30	-18	-10	-9	-9
24 28.1	-6	21.3	...	-22	-13	-7	-6	-6

## VK EAST - USA/CARRIBBEAN

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1 14.2	-5	11.2	-8	-6	-9	-17	-28	-28
2 18.4	-4	13.7	-12	-5	-5	-9	-17	-17
3 18.4	-8	13.9	-19	-9	-7	-10	-15	-15
4 20.1	-8	15.7	-27	-12	-7	-11	-15	-15
5 24.9	-6	17.9	-34	-15	-8	-6	-8	-8
6 25.2	-7	17.9	-37	-16	-9	-7	-8	-8
7 25.2	-7	17.9	-37	-16	-9	-7	-8	-8
8 24.7	-7	17.5	-36	-16	-10	-7	-8	-8
9 24.7	-7	16.9	-33	-15	-9	-7	-9	-9
10 22.3	-7	15.7	-36	-11	-7	-11	-11	-11
11 20.5	-7	14.4	-24	-6	-6	-9	-14	-14
12 18.8	-6	13.1	-14	-6	-6	-11	-18	-18
13 17.4	-4	12.1	-7	-4	-7	-13	-23	-23
14 11.2	0	11.2	0	0	0	-11	-30	-30
15 15.3	5	10.8	6	0	-2	-21	-36	-36
16 14.7	9	10.2	10	1	-9	-24	-	-
17 14.6	10	10.0	13	1	-11	-29	-	-
18 13.5	12	9.5	11	-2	-15	-31	-	-
19 13.3	13	9.3	11	-3	-16	-35	-	-
20 14.2	14	10.8	13	-1	-11	-30	-	-
21 14.1	12	9.8	11	0	-11	-28	-	-
22 13.7	6	9.6	5	-4	-14	-30	-	-
23 13.4	0	9.5	-1	-7	-16	-30	-	-
24 11.4	-4	10.2	-4	-6	-13	-29	-	-

## VK STH - AFRICA

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1 28.8	1	23.0	-22	-5	1	3	1	1
2 28.5	1	22.7	-23	-6	1	3	1	1
3 29.5	1	24.3	-27	-7	-1	2	1	1
4 29.5	1	24.3	-25	-7	0	2	2	2
5 29.1	1	23.9	-23	-5	0	3	2	2
6 28.6	2	23.6	-21	-4	1	3	2	2
7 28.1	3	23.0	-11	1	5	5	3	3
8 27.1	5	22.0	-1	7	8	7	3	3
9 26.5	8	20.9	13	9	10	8	3	3
10 24.2	10	19.5	23	20	16	9	1	1
11 22.6	11	18.2	24	19	14	5	-4	-4
12 21.0	11	16.8	23	17	17	-11	-11	-11
13 20.1	11	16.3	23	16	8	-3	-15	-15
14 19.4	11	15.8	23	16	5	-6	-19	-19
15 18.6	11	14.7	22	13	3	-9	-24	-24
16 17.9	11	13.9	20	10	-1	-13	-29	-29
17 17.0	11	12.9	18	8	-3	-18	-36	-36
18 16.1	11	12.4	17	4	-8	-25	-	-
19 15.5	11	11.9	15	1	-11	-27	-	-
20 16.3	11	12.4	17	5	-7	-23	-	-
21 26.7	7	14.0	13	8	1	-10	-23	-23
22 17.4	3	12.3	1	1	-11	-27	-	-
23 18.4	2	20.4	-10	1	4	3	0	0
24 26.3	2	22.2	-17	-2	2	4	2	2

## VK STH - ASIA

UTC	MUF	DMU	FOY	14.2	18.1	21.2	24.9	28.5
1	26.0	4	21.0	-1	7	8	5	1
2	25.9	4	21.4	0	7	8	6	1
3	25.9	5	21.3	1	8	9	6	1
4	25.4	5	20.8	8	12	11	7	1
5	24.5	6	20.3	14	15	13	8	1
6	24.0	7	19.8	20	16	9	1	-2
7	24.3	10	19.7	22	20	16	9	1
8	23.1	13	18.7	28	23	17	8	-2
9	21.6	13	17.4	28	21	14	4	-7
10	20.0	14	16.1	27	19	11	-1	-14
11	18.4	15	14.7	25	16	6	-7	-22
12	17.4	15	13.8	24	13	3	-12	-28
13	16.5	15	13.1	22	10	-1	-17	-35
14	15.7	16	12.4	20	8	-5	-22	-
15	15.1	16	11.8	19	5	-8	-26	-
16	14.7	16	11.1	17	2	-12	-31	-
17	13.7	16	10.5	15	1	-13	-37	-
18	13.4	15	10.1	12	-3	-18	-40	-
19	14.2	7	16.6	7	3	-14	-39	-
20	14.7	11	14.0	4	1	-15	-44	-34
21	19.7	13	14.8	3	5	1	-6	-17
22	22.7	14	17.4	2	7	6	1	-7
23	24.7	14	19.2	0	7	7	4	-2



## TRADE ADS

● **WEATHER FAX** programs for IBM XT/ATs. RADFAX2 is a high-resolution shortwave weather fax, Morse & RTTY receiving program. Needs GCA, SSB hf radio & RADFAX decoder. Also RF2HERC, RF2EGA & RF2VGA, same as RADFAX2 but suitable for Hercules, EGA & VGA cards respectively. \$35. SATFAX is a NOAA, meteor & GMS weather satellite picture-receiving program. Uses EGA or VGA mode. Needs EGA or VGA colour monitor and card, plus WEATHER FAX PC card. \$45. All programs are on 5.25" or 3.5" disks (state which) & documentation, a/c \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm, Qld, 4005. Ph (07) 358 2785.

● **AMIDON** ferromagnetic cores, for all transmitter and receiver applications. Send disk size SASE for data/print to: RJ & US Imports, Box 157, Mondale, NSW, 2223. (No enquiries at office, please ... 11 Macken St, Outley). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assos TV Service, Hobart; Electronic Components, ACT; Truscott's Electronics, Melbourne.

● **AUSTRALIAN** mapping grid program. Convert your eastings and northings to latitude and longitude. For Melbourne, your Melay 1990 edition 20 shows line dot dotted lines for you, mostly in AMG Zone 55. For Brisbane, your UBO 32nd edition, and for Sydney your UBO 18th edition, shows red marks around the periphery of each map that need pencilling in to get your grid lines, but northings and eastings stop on page for you in AMG Zone 56. The program is on 5.25" or 3.5" disk (state which) postage included for \$35. From Alan Judson, PO Box 459, Woorongabbie, Qld, 4102.

## FOR SALE - ACT

● **YAESU FT747GX** HF transceiver plus mobile bracket, \$900. Ian VK1GL. Ph (06) 254 8002 QTHR.

● **TR-2500** Kenwood 2m HH, complete with spk/mic, batt chgr, mobile cradle/chgr, soft carry case, spare batt. NICADS a bit tired. \$275 on sale. Paul. Ph (06) 288 7953 AH.

## FOR SALE - NSW

● **ELECTRONICS** Australia maps, Aug84 to Nov88, \$25 lot. Amateur Radio Action maps, vol 12/11 to vol 12/11, \$25. Tel vol 10/11 missing. W. Lazzar, 40 Wimburne Rd, Mulgoa, NSW.

● **KENWOOD TS430S** fitted with all options (CW, AM, narrow filters, FM unit), gen coverage RX, GC, \$1400 one. Ph (02) 971 9795 VK2HL.

● **FT290 2m** all mode 2.5W \$500. FT730 70cm FM 10W \$400. Both as new in boxes with csm mikes. VK2JZ. Ph (02) 488 7946.

● **VZ300** comp data cass plug packs, as new, inst book by RTTY modem ready to go. Lot \$140 QTHR VK2GKE Max (065) 85 5732.

● **YAESU FL2050 2m** linear amp, incl rec/p amp, as new cond, still boxed c/c. \$220. VK2GGE QTHR. Ph (065) 85 5732.

Kenwood R1000 serial no 0051184 communications rx 200kHz to 30MHz, digital readout, VCO, complete with owner & service manuals, \$450 one. Ph (02) 417 1129 or (02) 417 1628, VK2CWF QTHR.

● **LAFAYETTE** amateur band only receiver model HA-350 \$100 ONO. Ph (02) 623 3606 VK2PBM QTHR.

● **1990 Radio** Amateur Callbook international listings and North American listings, in GC, both volumes, \$55 incl postage. Steve VK2PS. Ph (02) 634 1809.

● **DECEASED ESTATE** Syd Smith VK2AVG. Garage sale 16/17 Feb. 6 x HF rigs, 8 x 2m rigs. WWII collector items, tools, misc elect items. TV sets, radios, etc. 42 Bindee St, Como, NSW, 2226. Ph (02) 528 9835.

## FOR SALE - VIC

● **ICOM IC502 6m** SSB in mint cond, handbook & original box, \$145. STC commercial base station converted to 6m FM, with 52.5MHz amp & repeater VK3RMS (53.9MHz) 3000. SSB with remote cont & mic, Comp & going \$100 one. Marconi sig gen 10-300MHz, callb ant to tuv pd. With circuit and spare RL18 osc tubes, \$120 one. Ian VK3JAY. Ph (053) 523 9405 AH.

● **YAESU FT1012D** in VGC with DC-DC converter fan, manual, \$700. YAESU FT707 in GC with narrow CW filter, manual & carton, \$650. Damian VK3HP QTHR. Ph (053) 52 4183.

● **NALLY** Tower 17m, free standing, wind-up, tilt over, C/W Hyatt TH6-DXX HF beam and Emotor 502CXX, heavy duty rotor. All in Comp. Replacement \$2800, sell \$1700. Ken, VK3MW. Ph (03) 560 5278 QTHR.

● **CRYSTAL** 1MHz for 147.425MHz TX, suit Icom 215, \$8. Also Azden PC53000 with remote cable, \$320. VK3YNB QTHR. (053) 31 3829.

● **C42 FM** Transceiver ex-army, complete with power distribution box and all ext cables, mic & headphones. Best offer plus manuals. VK3ERG. Ph (03) 541 5458 BH.

● **REALISTIC HXT100** 10m SSB/CW transceiver, only 4 months young with 5ft ZCR mobile whip, \$400. Derek VK3D0, Yarra Glen. Ph (03) 730 1557.

● **6-METRE** station complete, Icom IC502, ICSOL, RETO Swiss Qnd Ant, all good order, complete with handbooks, \$250. Ph (03) 557 5475 Mike VK3KTO QTHR.

● **ICOM IC701 S/N 5365**, FC, as is, \$300. Icom IC2ZA S/N 3338, FC, as is. \$100. Ernie VK3CEW. Ph (03) 467 1503 (home) or (03) 520 0954 (work).

● **KENWOOD TS520** transceiver, AC/DC mic and handbook, impeccable cond, any test welcome, \$395, buyer collect. Alan VK3AMT Ph (03) 789 9106.

● **OSCILLOSCOPE** BWD 509B 5" DC to 7MHz wkg order w/ handbook, GC, \$100. Retford "Tama", suit UHF/VHF or light HF W640AC control unit, new, unused, \$100. Command Xmitter 5.3-7MHz w/matching 240AC power supply, GC, \$35. VK3SZ QTHR. Ph (03) 560 4305.

● **YAESU FT208** handheld, EC, inc batt and mic, \$225. Realistic PRO31 fully programmable scanner, as new with box and manual, \$225. Ph (03) 782 1115, Norm VK3ZEP.

● **EIGHT CHLORIDE** positive plate 6V 90amp/hr lead acid cell batteries, \$150 ea. Two Power Sonic gel cell, sealed, recharge 12V 50Amp/hr batteries (new), \$200 ea. One Power Sonic gel cell sealed rechargeable 12V 40Amp/hr battery (new), \$180. Thirty-four General Electric NICAD D-cell batteries, 1.2V 4Amp/hr (new), \$10 ea. Two 48V DC 2A regulated power supply, \$60 ea. Two 24V DC 1.3A regulated power supply, \$40 ea. Evan VK3EJV. Ph (03) 438 2678 AH.

● **TX tubes** 4-125 new Icom IC202 SSB xcvr tubes, \$100 pr. XCVR \$120 VK3JZ QTHR Ph (03) 718 2293.

● **ROTATOR** ham IV heavy duty electronic wedge brake, brand sparking new, \$690. Ted VK3TG. (052) 59 3225.

● **TRIBAND** full sized Telrex beam, top performer, \$325. Ted VK3TG. (052) 59 3225.

● **AT MOTHERBOARD** w/16M RAM 4.77/10MHz, \$150. Case w/150W per supply, room for 21 inch height drive \$30. 2x360K Mitsubishi FDDs, \$80 ea. XT keyboard, \$50. TI-74 BASIC/CALC - handheld basic computer with scientific calculator, 16K RAM, Mathpac ROM cartridge, all manuals, as new, \$200. Non-operational CGA monitor, \$30. Peter VK3DXX. Ph (03) 725 1145 QTHR.

## FOR SALE - QLD

● **YAESU FT770V**, ser 8K110843, incl mic, handbook, VG \$320. YAESU FL110 linear amp, ser 9H070191, with handbook, VG, \$150. Commodore C64, ser UKB127445 with Datasett, GC, \$100. Realistic AM/FM stereo xcvr STA350, VG, \$100. Palco mod osc, ser 5156, 150kHz-30MHz, VG, \$60. VK Powermate 13.8V, 10 amps, home brew, \$40. VK4CK QTHR. Ph (07) 371 2135.

● **FULL SET** Kenwood mobile whips and base, \$75. Hygain TH3MK3, needs minor repairs, \$150 one. Jim VK4JUS. Ph (079) 28 2843 AH.

## FOR SALE - STH AUSTR

● **YAESU FT690R 6M** all mode transceiver, as new cond, in original box. Plus 6M home brew beam antenna, \$480. Bruce VK5ZTO. Ph (08) 292 0569 BH, (08) 339 4955 AH.

● **PANASONIC** DR49 communications receiver manuals, \$400. MSC33 tri-band base, \$200. ARLEC power pack PS 501, 3x/9/12V, 1amp. \$50. VK3NWL, QTHR. (08) 255 6976.

## FOR SALE - TAS

● **IC251A 2m** all mode, \$850. IC28A 2m FM, \$450. TR650 70cm, all mode, \$750. Dick Smith 70cm 50W linear, \$200. TR9000 2m, all mode, \$500. Richard VK7RO. Ph (002) 27 8974.

## WANTED - NSW

● **YAESU 290R** 2m rig or similar. VK2EJU. Ph (065) 53 1305.

● **UNSERVICEABLE** AVO meter, model eight MK3 or movement or moving coil, also two quality valve tester. Will pay good price. Ph (068) 81 8906, 8 Gosse Ave, Dubbo East, 2830.

● **CIRCUIT** diagram for Palco sig gen model SG1 plus manual or photocopy. Cost reimbursement. Jim VK2GJW QTHR. Ph (066) 77 8370.

## WANTED - VIC

● **YAESU FT501** t/ciever, must be in EC. Will pay good price. Rob VK3JE. Ph (060) 37 1262 or (03) 584 5737.

● **TRANSMITTING** valves type 810, details to Ian VK3JAY. Ph (03) 523 9405 AH, (03) 428 4732 BUS.

● **AWA VHF** car phone, type 3J59431 replacement valves and spare parts required. 6BH6, 6AX5, 6AX6, 12AT7, ECH81, 6C4 and 6QF03/12. Vincent VK3AJ0. Ph (03) 872 3503 QTHR.

● **INDUCTANCE & capacitance** slide rule scales. Also solar cells similar to those in solar-powered calculators. VK3YNB QTHR. Ph (053) 31 3829.

● **DC current** probe similar to Tektronix A6302 for digital storage CRO. Must not break into circuit. VK3DQ QTHR.

● **YAESU FTV250** with manual, GC. Bob VK3EFD QTHR. Ph (03) 374 2416.

● **FT101E** in good working order. John VK3NJK QTHR. Ph (057) 95 2364.

● **CIRCUIT** diagram service data for National Radio USA, NC-105 receiver reviewed QST April 1962. All costs reimbursed. Ken VK3EVI QTHR. Ph (03) 580 5347.

● **COLLINS KWM2** or KWM2A transceiver in EC. Will pay good price. Rob VK3JE. Ph (060) 37 1262.

● VARIAC or similar, 150 watts or any bench-type unit. Ron VK3BRC QTHR. Ph (03) 819 3568.

● BC348 or BC122 revr. Must be in GC or unmodified. Good price paid. VK3JZ QTHR. Ph (03) 718 2293.

#### WANTED - QLD

● CRO module for Singer Gertsch S16. Gen. Rod Tow. Ph (075) 63 1308, 5 Hooper St, Boonah, 4310.

● MILITARY radio collector/restorer badly needs cables for C11/R210 WS, case for 129WS, tubes, 6AJs, 5082, 6AK6, 6B3, 6BH6, CV2347, SB258M regulator 3TFT, VK4EF, 97 Jubilee Toe, Bardon, 4065. Ph (07) 366 1803 AH please.

● WANTED BY WWII signaller British Army valves AR3 AT26, AT50, USA valve 2DF4 for PRC 25 WS, component list Aust Army 129 WS, book for RAAF AR17 receiver. Appreciate any help VK4EF. 97 Jubilee Toe, Bardon, 4065. Ph (07) 366 1803 AH.

#### WANTED - STH AUST

TEN-TEC CENTURY 21 txvtr, Heathkit HWS txvtr, 16 quad readheads, budget priced antenna rotator, 750hm twin lead, 300ohm ladder line VK5HP. Doc Ph (086) 49 1956.

#### WANTED - WESTERN AUSTRALIA

● WANTED please, CW filter for FT707, VK6HC, QTHR. Ph (09) 293 2858.

● INTRUDER WATCH OBSERVERS in VK6. Free tape, logs, postage & advice. Please help. Contact Graham VK6RC, QTHR. Ph (09) 451 3561.

● ANYONE using coherent operating system a unix workalike please contact Jon VK6TU QTHR, possibly form club. Ph (09) 349 9342.

#### WANTED - TAS

● YAESU FT825R/RD or K'wood TS600 6m trc. Must be in GC. Damien VK7CDI. Ph (003) 95 4153.

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## Solution to Morseword No 47

	1	2	3	4	5	6	7	8	9	10
1	.	.	.	—	—	.	—	.	.	.
2	.	.	.	.	.	.	.	—	—	.
3	.	.	.	.	.	.	.	.	.	—
4	.	.	.	.	.	.	.	—	—	.
5	—	.	.	.	—	.	.	.	.	.
6	—	.	.	.	.	.	.	—	—	.
7	.	.	—	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.
9	.	.	—	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.

Across: 1 sore; 2 zip; 3 start; 4 leak;  
5 daft; 6 bay; 7 wife; 8 suer; 9 errs;  
10 lies

Down: 1 rates; 2 arena; 3 hike; 5  
dais; 6 king; 7 vase; 8 Moree; 9 real;  
10 ions

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The Membership Secretary  
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Caulfield South, Vic 3162

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Call Sign (if applicable): .....

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.....

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VK4WIL	Tuesday at 0930 UTC on 3535 kHz (0830 UTC during summertime)
VK4WCH	Wednesday at 0930 UTC on 3535kHz (0830 UTC during summertime)
VK4WIS	Nightly at 0900 UTC on 3542 kHz (0830 UTC during summertime)
VK5AWI	Nightly at 1030 UTC on 3550 kHz
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### **INSIDE A SOLAR RACING CAR**

Although the winner of the 1990 World Solar Challenge, *Spirit of Biel Bienne*, was built in Switzerland, its success was largely due to the highly efficient Australian-developed solar cells in its collector array. Brian Woodward explains what went into the car, and how it won.

### **'SHADDERS ON THE WALL'**

Neville Williams writes about his youth, and the old-time picture show built by his maternal grandfather in the rural village of Bargo. It started as a silent show, but eventually became a 'talkie' — with a salvaged sound head, and an amplifier put together in a rush by young Neville...

### **NEW 2M FM TRANSCEIVER - 2**

In the second article describing this outstanding new design for an easy to build 2m FM transceiver, Jim Rowe explains how to build and test the first few sections of the circuit. The complete unit is designed for easy stage-by-stage assembly, with each section able to be tested before you proceed with the next.

### **THE CURSE OF AUDIO TRANSFORMERS**

One of the problems in restoring old valve receivers is that they generally used audio transformers, many of which have developed open-circuited windings with age. Peter Lankshear explains why many early transformers suffered from this problem, and how it was eventually overcome. Next month he'll explain how many transformers can be repaired.

## **PLUS ALL OUR REGULAR COLUMNS AND DEPARTMENTS:**

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